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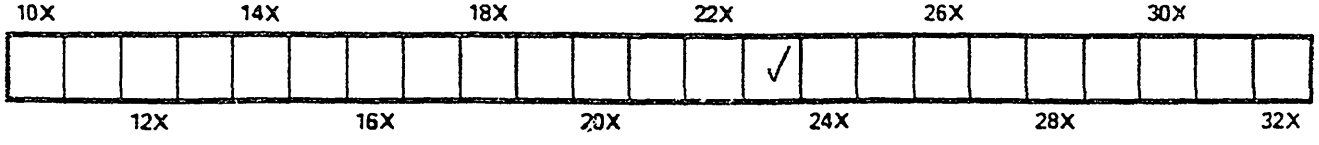

—THE—

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A Monthly Review and Record of

SANITARY PROGRESS

—EDITED BY—

EDWARD PLAYTER, M.D.

Public Wealth and National Strength and Wealth.

VOL. X. NOVEMBER, 1888. No. 11

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MEAT AND MILK SUPPLY IN RELATION TO TUBERCULOSIS IN CATTLE.

BY THOMAS WALLEY, PRINCIPAL AND PROFESSOR OF VETERINARY MEDICINE AND SURGERY, IN THE ROYAL VETERINARY COLLEGE, EDINBURGH; EXTRACTS FROM A PAPER READ AT THE RECENT ANNUAL MEETING OF THE SANITARY ASSOCIATION OF SCOTLAND—FROM THE SANITARY JOURNAL, GLASGOW.

THE question of consumption of not only the flesh of animals, but the milk of cows and the eggs of poultry suffering from tuberculosis (or consumption) is of the gravest importance, especially seeing that it does not confine its attacks to animals, but affects the human subject also: and in order that you may be able to estimate the possible effects of the flesh and milk of such animals upon the human frame, it is necessary that a few words should be devoted to the consideration of the nature and progress of the disease itself.

THE TERM TUBERCULOSIS applies only to a diseased condition in which growths resembling little *knots* or *kernels* are formed within, or upon, the different organs of the body. These little knots are technically termed "tubercles." At one time it was thought that they were the result of ordinary inflammatory action in the organs of persons or animals who had inherited a scrofulous or consumptive tendency from their parents, but, while it is a fact, and a very important one too, that such hereditary tendency is a powerful factor in its production, the healthiest man or animal may become the victim of the malady.

Of the domestic animals, cattle, pigs and poultry, are pre-eminently the hosts of this disease; sheep and goats are rarely if ever spontaneously affected though the disease can be readily transmitted to every living creature (and it has been stated by Villemin to plants also) by inoculation with particles of the so-called tubercles.

THE BACILLÆ.—Up to the time of Koch's discovery of the bacillus, the actual nature of the disease was unknown, but many of those who had studied the question had long before that date arrived at the conclusion that it was due to a germ or virus. In 1872 I publicly expressed (at a veterinary meeting held in Glasgow) the conviction that the disease was of a specific nature, and was capable of being propagated from animals to man.

The first evidence of its true nature was obtained by the carrying out of a large number of experiments by a well known pathologist of the name of Villemin, and during the last fifteen years hundreds of animals of various species have been sacrificed by experimentalists with the object of determining the actual nature of the malady. . . . It has been found that the inhalation (or taking in by the breath) of dried particles of tuberculous matter or of dried discharges from the lungs of consumptive animals or of man, is sufficient to propagate the disease.

As has already been observed, it was not until the date of Koch's memorable discovery of the bacillus that the true nature of this disease was known. Koch, a German pathologist, after a very patient examination, discovered in tuberculous matter a microscopic organism of a vegetable nature. This fungus belongs to the class of *fission fungi*—*i.e.*, it has the power of multiplying by division, and from its elongated staff-like shape it is known technically as a *bacillus*: some idea of its minute size may be gained from the fact that it requires a magnifying power of 600 degrees to render it visible to the eye.

Moreover, a careful process of staining by aniline dyes has to be carried out in order to distinguish it from other organisms of a similar character.

This minute fungus not only multiplies by fission, but by spores also, and these are of infinitely greater importance than are the bacilli themselves, inasmuch, as like the seeds of a plant, as compared with the plant itself, they withstand the effects of a far greater amount of adverse influences; and it has been shown by Pasteur that at a temperature of 212° F., milk containing spores requires to be boiled for a considerable period in order to render it harmless.

It is necessary that this fact should be kept in mind in reference to the question as to the harmlessness or otherwise of tuberculous meat and milk.

Not only do the spores of this fungus withstand the effects of boiling, but they resist the action of long drying and of freezing, and also of strong solutions of salt; and it is believed that they are capable of retaining their vitality and their power of propagation and reproduction for a very long period outside the living body. Thus it is believed, and in fact distinctly proved, that the dried spittle of a consumptive man, and the discharges from the nose of a consumptive cow, adhere to woodwork and similar substances, and may be the means of contaminating healthy persons or animals respectively long after they have been so deposited.

The Lancet (30th June, '88) says: In inquiring into the origin of epidemics, it is felt how necessary it is to recognize the channels of diffusion, and the vital resistance of the infectious microbes. The germ of glanders possesses but little vitality; desiccation kills it; putrefaction shortens its life; and the chances of infection, when not immediate, diminish and rapidly disappear as time proceeds. The germ of tuberculosis, on the contrary, realizes a collection of conditions eminently favorable for more remote infection, for it survives the majority of microbes usually associated with it. Neither drying nor putretying appear to destroy it, whilst both processes often allow of its being distributed through air or water.....

In numerous experiments pieces of tubercular lung were kept at a temperature from one degree to eight degrees below zero, in such a fashion that the matter remained frozen sometimes for more than a week. Yet virulence was maintained for seventy-six and one hundred and twenty days.

How They Enter the Body.—The methods by which bacilli or their spores gain access to the living body are—1, by inhalation (breathing) of contaminated air; 2, by ingestion (swallowing) of any fluid or solid matter containing tubercular products; and it has been shown distinctly that these products need not contain a single bacillus in order to render them infective. And this is easily accounted for by the fact that though no matured bacilli may be present, there may be thousands of spores which, when sown on favorable ground, develop in the course of time into matured bacilli.

When bacilli or their spores are taken into the interior of the body, they adhere to the inner lining of the different organs (the mucous membrane), and may there undergo further development and multiplication. As a proof of this it may be mentioned that when calves are fed on milk from cows suffering from tubercular disease of the udder, or milk with which is mixed tuberculous matter, the disease is found developed along the membrane of the mouth, throat and bowels. At the same time there can be no doubt but that millions of these bacilli are rendered harmless by the juices of the stomach, or are swept out of the bowels before they can gain lodgment. Many of these organisms pass from the mucous surface, or inner lining of the bowels and lungs, into the surrounding tissues.....

Next to the lymphatic glands the delicate lining (serous membrane) of the abdomen and the chest is most largely affected.

Of the internal organs, the lungs, the liver, the kidneys and the brain are most frequently found to be the seat of tuberculosis.....

The udder of the cow, unfortunately, is also frequently affected with the disease, and many of the so-called cases of "weed" in that organ are nothing more nor less than tuberculous inflammation.

Their Effects on the Tissues.—The bacilli produce their effects on the tissues by acting like any other irritant matter—*i.e.*, by setting up a circumscribed inflammatory process which results in the formation of minute centres of new tissue; this new tissue, however, never becomes perfectly organized owing to the want of perfected blood-vessels, and indeed in place of going on to form a permanent tissue it goes through a backward or retrograde process, and becomes converted into a material resembling cheese (caseous matter) of a very soft consistence, and into a gritty substance known as calcareous matter.

The primary tubercular centres are no bigger than millet seeds, and from this fact they are termed *miliary tubercles*. But owing to the amount of inflammation of the tissue in which they are produced, they become aggregated together and form immense masses or tumours, and these masses may either remain hard and firm or may undergo a general softening, and produce tubercular abscesses or "gatherings."

From the peculiar arrangement of the small tubercles, and of the growths resulting from their aggregation, various terms have been used to designate the different forms of tubercular growths. Thus, from their fancied resemblance to that fruit, they are termed in many parts of the United Kingdom "grapes," and in other parts (from the supposition that they resemble those berries) they are called "angle berries." Not only in this country, but in Continental countries also, are they designated according to their resemblance to different well known objects. Thus the Germans speak of this disease as "duckweed disease," and as "pearl disease," while the French speak of it as "potato disease," the latter term more particularly applying to the larger tubercular masses. In this country the enlarged glands are spoken of as "clyers" or "kernels."

It is of the highest importance to note that not only the little millet-seed-like bodies, but every form of tubercular product also, contains either bacilli or their spores, or both bacilli and spores; but while this is so, it is equally important to note that it is from the softer products that the great danger of a general contamination of the system arises.

In reference to the flesh of infected cattle, actual tubercular growths are seldom found in the structure of muscle (or at least are not sufficiently large to be visible to the naked eye) unassociated with disease of some adjacent organ, such as a joint or a bone; but, notwithstanding this fact, there is abundant evidence to show that the juice of the flesh of tuberculous animals contains the germs of the disease and amongst those who first pointed this was Toussaint, a veterinary teacher at Lyons.

In poultry, small tuberculous masses are often found in large numbers between the layers of the muscles and on the inner surface of the abdomen and seeing that the bodies of fowls are not cut up like those of cattle it will be at once apparent that such masses may be overlooked before cooking.

The effects of tubercle on the systems of its hosts depends—1. Upon the rapidity with which the disease runs its course. 2. Upon the extent of the disease. 3. Upon the importance of the organs involved. 4. Upon the situation of the tubercles—*i.e.*, whether in the interior of the organs or on their exterior. 5. Upon the amount of the inflammatory action accompanying the formation of the tubercles. 6. Upon the subsequent changes—*i.e.*, as to whether the tuberculous masses become hard or soft, and—7. Upon the constitution of individual animals—*i.e.*, as to their capability or otherwise of withstanding the effects of diseases. If the disease runs its course slowly there may be no injurious effect exercised upon the body, nor will there be any visible sign of its existence so far as the general aspect of the animal is concerned; but if the disease runs its course rapidly fever, often very high, is established and the body rapidly wastes. In like manner the localization of the disease on the external surface of organs is never associated with so much general disturbance as that produced by its localization in the interior of organs; and enormous masses of so-called "grapes" or "angle berries" (from a half cwt. to one cwt.) may be found in connection with the lining of the abdomen or of the chest without the animal evincing any external evidence of their existence: again, if the tuberculous products undergo rapid softening the disease is spread more readily through the system and the whole body becomes rapidly contaminated.

The effects of these growths, so long as they remain hard, may be likened to the effects of a parasite—*i.e.*, they demand a supply of nutrition, and so long as the animal is capable of supplying this in excess of its own wants, so long will it not only preserve its condition, but actually thrive. The same remark holds good when the tuberculous formations become hard and gritty, or, in technical language "obsolete."

In the case of such organs as the lungs, liver, kidneys, and brain, the disturbance produced by the pressure of large masses of tubercle is sufficient to interfere with their function, and thus lead to important interference with such normal processes of life as digestion, the purification of the blood, and nerve force.

From these remarks it will be seen that under certain circumstances animals may become extensively diseased, and yet no suspicion of the fact is aroused in the minds of the owners of, or the attendants upon, such animals. On the contrary, a very limited amount of disease may give rise to such marked disturbance as to at once show that there is something materially wrong.

THE QUESTION OF THE USE OF THE FLESH.—It must not for a moment be assumed that the present is the first period in the history of this disease in which this question has received attention; we have it on the authority of Lydtin, Fleming, and Van Hertsen that there existed in the Mosaic laws strict legislative rules as to the condemnation of the flesh of an animal, or any portion of an animal, affected with this disease, at least at certain stages of the disease; and there can be no question that the laws embodied in the "Mischna" (the oldest part of the Talmud) distinctly referred to the prohibition of the use of such flesh. From this 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 such countries as Spain, Italy, and Switzerland; and severe punishment has at different times been inflicted upon butchers and others who have wilfully sold such flesh for consumption.

Very recently a most striking example of the effects 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 devouring the imperfectly cooked bodies of tuberculous fowls.

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 authorities of the Grand Duchy of Baden in the year 1881, and published in Lydtin, Fleming, and Van Hertsen's paper.

The chart applies to no less than 52 towns, and shows that where tuberculosis is prevalent among cattle, it is equally prevalent amongst the human population, and is particularly prevalent in those towns in which the number of low-class butchers is greatest. One remarkable exemption to this is found in the town of Wertheim, but it is significantly pointed out that from this town large quantities of sausages, made from flesh of inferior quality, are annually exported.

That the flesh of tuberculous animals, and even the tuberculous organs of animals, may be consumed with impunity when properly cooked, cannot be denied, but in how many instances, it may be asked, is such flesh eaten without being properly cooked?

When the facts already stated as to the power of resistance to heat of the spores of the tubercle bacilli are borne in mind, it will be plain to all observant persons that, in the ordinary process of cooking, especially in the cooking of large joints, there may be ounces of flesh devoured by human beings that are never subjected to a sufficient amount of heat to destroy these spores. Take for example the cooking of a beef-steak, or of a large roast of beef. How many people are there who prefer that it shall be *under-done?* and consequently, in how many instances must the flesh and internal organs of animals be eaten, in the interior of which numbers of bacilli and their spores retain their vitality?

It is well known that many people have a great partiality for ox kidneys and for liver—especially the livers of poultry—and that ignorant persons are not always particular in reference to the existence or non-existence of such apparently harmless things as small yellow spots or blebs (tubercular nodules); and I have on several occasions had such organs submitted to me for examination that had been sold for human food.....The lymphatic glands are more often affected by the disease than any other organs of the body, and that large numbers of these glands or kernels are situated in the deep portions of the flesh, and are by many looked upon as a delicacy.

USE OF THE INNER ORGANS.—While there may be some difference of opinion as to the flesh none can exist in reference to the organs, they should be unhesitatingly condemned; and particularly in view of the fact, that in whatever way the disease may be contracted, or through whatever channel the bacilli may gain access to the system they must necessarily find a lodgment in the lungs, the stomach, the intestines, or the liver: and assuming for a moment that they gain access to the blood, they are bound in the ordinary course of circulation to pass through the vessels of the organs mentioned, and in doing so may be arrested in the capillaries of these organs.

The point which has received most consideration in connection with the consumption of flesh is, as to where the line (if any) shall be drawn—*i.e.*, whether the carcass of an animal which only shows evidence of the existence of tubercles of the serous lining of the abdomen and chest, may be with safety passed after the lining has been removed by "stripping."

If it could be shown beyond the possibility of a doubt, that under these circumstances there was no contamination of the muscle itself or of the lymphatic glands, and if every particle of the tuberculous lining be removed, such carcasses might be used as human food with impunity. But evidence as to the non-existence of bacilli in the flesh, could only be gained by careful and prolonged microscopic examination, and inasmuch as the process of staining required to render the bacilli visible is a tedious and elaborate one, it is evident that the adoption of such a system of examination in all cases is impracticable; nor can the test of inoculation of animals with the juice of the flesh—seeing that the disease requires a considerable time to develop—be brought into requisition; and even if this were not the case such a test would be prohibited by the provisions of the Vivisection Act.

It may be argued that there is no direct proof of the transmission of tubercle from animals to man by the consumption of flesh, such proof it need scarcely be said, cannot for manifest reasons be obtained, but the mass of indirect proof in favor of such supposition is enormous, and if our arguments against the use of such flesh are based only upon analogies and deductions they are sufficient to warrant us, in view of the great gravity of the question, in prohibiting the sale of tuberculous flesh for human consumption.

I have frequently examined the carcasses of cattle that have been subjected to the "stripping" process—and with which no fault could be found so far as the quality of the meat was concerned—and discovered masses of tubercles in situations that would usually have escaped detection in such superficial examination as that to which meat is subjected by the ordinary inspector.....

On Infection by Milk.—The question of the infection of tuberculosis being conveyed by milk is of even greater importance than is infection by flesh; for the twofold reason that the former is largely consumed by infants, and is imbibed, generally, in an uncooked state. Moreover, the cream, the butter-milk, and butter from such milk, as has been shown by Professor Bang, of Copenhagen, and others, is as infective, if not more so, as milk itself.

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 there is a mass of evidence—certainly to a large extent indirect—in favor of the view that it is by this vehicle that the germs of the disease are conveyed from the cow to the human subject. 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.

In a paper read at the meeting of the National Veterinary Association held in London in 1883, Mr. Cox, of the Army Veterinary Department, related the particulars of a case which inevitably led to the same conclusion as did also Mr. Hopkins, F. R. C. V. S., of Manchester. Dr. Fleming has also referred to a similar case as occurring in the child of a surgeon in the United States, and a short time ago 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 in Edinburgh on the 15th February last, Dr. Woodhead referred (during the discussion following the reading of my paper on tuberculosis) to some undoubted cases of transmission to man and the pig by the medium of milk. To these instances a large number of others might be added, but these are sufficient for our present purpose.

The danger of contamination by milk will be better appreciated 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 as has been shown by Professor Bang, a veterinary teacher in Copenhagen, in the milk of women too, in whose breasts the disease existed.

On the Prevention of Tubercle, the following propositions are formulated:—1, All flesh and offal of infected animals, especially in the advanced stages of the disease, should be destroyed by fire or otherwise; 2, All suspected animals should be carefully isolated until special signs of the disease have become developed, 3, All actually affected animals should be destroyed; 4, All contaminated food, litter, &c., should be disinfected or burnt; 5, All infected houses should be disinfected; 6, No animal whose history is tainted, even in the slightest degree, or in whose system there exists the least suspicion of tubercle, should be used for breeding purposes; 7, The system of feeding and general management of our high class stocks should be regulated on a more rational and conservative basis than that on which it at present rests.

Aphorisms on Child Culture.—None has yet penetrated the mystery of a mother's influence over her child. Science shows how all important is this influence before birth, but has not yet found out what germs of character are earliest developed and fostered by the magnetism of a mother's love, on the physical and mental growth. A little child can only judge of you by your action. It is no use preaching at or to him. Never deceive your child. If you once do he may never believe you again. When a child is unusually naughty and cross, the chances are that he is not well....Let him have a run and a romp out of doors. The best physicians for many complaints are—Dr. Diet, Dr. Quiet and Dr. Merryman;—diet, rest and cheerfulness. Every child ought to have his flower garden—a plot of ground that he may call his very own—that he may to his heart's content, dig and delve, and plant and sow. A quacking mother (one who is always dosing her children) is a misfortune and makes plenty of work for the doctors. Some mothers deserve a whipping more than do their children; she, having encouraged a fault by bad management, is the real offender.—Dr. Chavasse, F.R.C.S.&c.

Neuralgia, severe, may arise from many seemingly little causes, in persons of susceptable or irritable nerves, but Dr. Lauder Brunton considers decayed teeth one of the most common causes; often when there is no pain in the tooth.

Ladies are often much annoyed by excessive sweating in the armpits. Salicylic ointment, or one of boracic acid (half a drachm of the powder to an ounce of vaseline), is serviceable. Starch powder may be used, and, if needed, a pad of absorbent cotton continuously worn.

SEWAGE FARMING—KIRKINTILLOCH AND FORFAR FARMS.

OF the method of sewage disposal by sewage farming, but little is known, in a practical way, on this continent, the sewage farm at Pullman, Illinois, being probably the only one on this side the Atlantic. At considerable expense, we this month lay before the readers of the JOURNAL details, illustrated, of the process as adopted in two towns in Scotland, and which applies to the process as practiced in the other places, now including quite a number of towns in England. For copy of the illustration and the text, for the most part, we are indebted to the Glasgow Sanitary Journal.

THE KIRKINTILLOCH FARM; BY WM. WHITELAW, M.D., F.F.P.S.G. HEALTH OFFICER.

On May 27th, 1886, the first sod of the sewage works of Kirkintilloch was cut, and the work has steadily progressed under the supervision of Mr. Copland, the engineer for the burgh. The scheme is that which he recommended in 1876. The Townhead of Kirkintilloch being situated on a height, it has been found advisable, in order to minimize the cost of pumping, to construct two main outfall sewers, one for the higher parts of the burgh, and the other for intercepting the sewage of the low-lying portions. Both reach from different points the filtration beds at Dryfield. The works at Dryfield consist of a storage tank, a distributing and screening tank, and the various channels and conduits connected therewith, and several filtration beds, covering at present an area of nine acres. The storage tank referred to is situated at the end of the low-level sewer, and holds 107,000 gallons. Its diameter is 45 feet, and it is divided into two compartments by an 18-inch brick wall, to admit of one compartment being cleaned while the other is being worked. The principal object of the tank is to store the sewage passing down the low-level sewer during night, and in this way to restrict the operation of pumping to the ordinary working hours. Besides this, it allows the pumping to be restricted during the day to the shortest possible time which the pumps will admit of—that is to say, with sufficient machinery, the pumping can be limited to two or three hours in the morning and two or three hours in the afternoon, leaving the tank empty to receive the night flow.

The machinery at present being provided consists of a 9-horse power Otto gas engine and one of Messrs Gwynnes' No. 5 centrifugal pumps, these being guaranteed to raise 900 gallons per minute to the required elevation. Provision is being made for doubling this plant when found necessary.

The sewage pumped from the low-level sewer will discharge along with that from the high-level or gravitation sewer into the distributing tank situated at the upper corner of the filtration areas. After passing through the screening tank the sewage will be directed by a number of sluices into the various distributing channels, and by them carried to the filtering beds. These consist of twelve plots of ground averaging ⅓ths of an acre of area in each, there being four plots in the length and three in the breadth of the ground occupied. Each plot has had its surface brought to a perfect level; and as the ground originally sloped slightly to the river Kelvin, the plots in each division rise in terraces, one above the other.

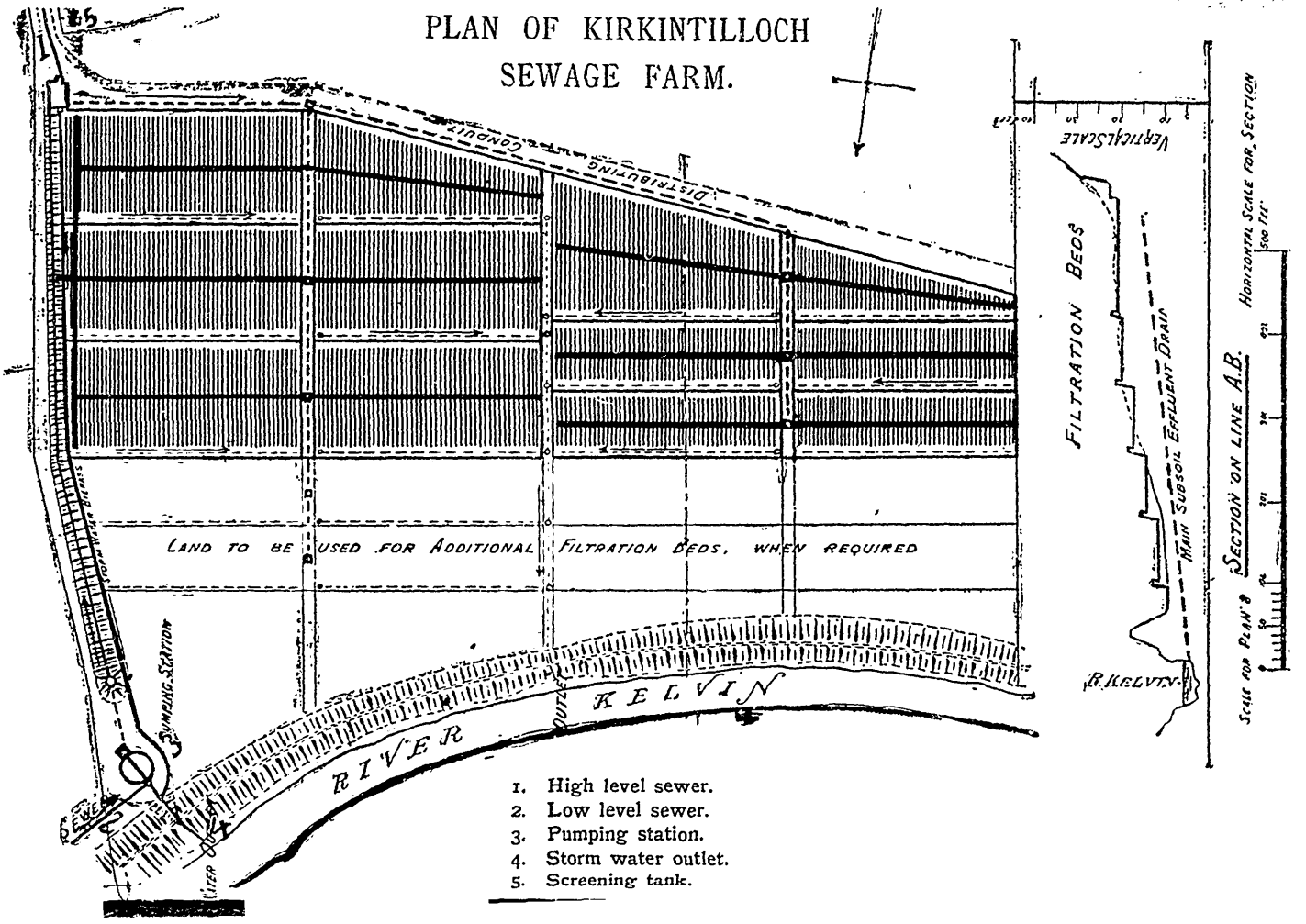
The main sewage carrier is led along the upper edge of the filtration areas, and branch carriers are led down between each set of plots, provided with valves opposite the end of each, so that the sewage may be run on to the surface of any one, or more, as required.

The filtration beds are prepared to receive the sewage by spade work. First of all a main channel is formed from the sewage outlet along the centre of each plot, and then from this main channel smaller arteries are carried right and left across the ground at intervals of four or five feet, the whole ground when prepared forming a series of ridges and furrows resembling the "lazy beds" to be seen in some places for the cultivation of potatoes. The sewage flows along and fills all the furrows, but but is not allowed to rise so far as to touch the vegetables grown on the ridges. The furrows retain any solid matter, and a subsoil drain, laid at a depth of from 6 to 7 feet, is led along beneath the top of each terrace to intercept and carry off the effluent water which percolates through the soil. It is found that, with a favourable sub-soil, composed of gravelly sand like that at Dryfield, the effluent is very small and quite unobjectionable. These sub-soil drains are connected with a main outfall which discharges the effluent into the Kelvin.

The size of the farm at Kirkintilloch is 24 acres, and the population of the burgh 8,000; but, as already pointed out, only 9 acres have been laid out for cultivation. A large portion of the remaining 15 acres can be used for purposes of irrigation, and ultimately as the town increases, will be laid out in the same way as the 9 acres.

Since the scheme was begun, an arrangement has been entered into between the Kirkintilloch Commissioners and the Cadder Parish Authority, whereby the former undertake the drainage and disposal of the sewage of South Lenzie. The main outfall sewer for this district is joined to the high-level outfall sewer leading to Dryfield.

PLAN OF KIRKINTILLOCH SEWAGE FARM.



1. High level sewer.
2. Low level sewer.
3. Pumping station.
4. Storm water outlet.
5. Screening tank.

The main outfall sewers leading to Dryfield are partly of 18 in. diameter circular fire-clay pipes, jointed with cement, and partly of 24 in. by 16 in. egg-shaped pipes; while the branch drains are principally of 9 in. pipes, although portions are of 12 in. and 15 in. diameter. Altogether, the main outfall sewers extend to 6½ miles, and the branch sewers to fully 11 miles, the whole being properly ventilated by vertical shafts and open gratings, the number of these being about 170. It is expected that the whole system will be in full operation in the course of six months.

SEWAGE DISPOSAL IN FORFAR, FROM A PAPER BY WILLIAM F. MURRAY, M.D., F.R.C.S., HEALTH OFFICER.

Forfar, a town of about 15,000 inhabitants, by reason of its situation, almost in the centre of the basin of the great Valley of Strathmore, had met with exceptional difficulty in the disposal of its sewage. About 30 years ago, hand-loom weaving was superseded by the introduction of steam-loom factories, and since then the Loch (Rescobie, it appears, into which the sewage flowed) had been getting gradually more polluted by the sewage and the refuse of the manufactories and bleach works... and threatening to produce a nuisance. In 1871 a deputation urged on the Commissioners the necessity of disposing of their sewage in some other manner. It was decided to construct a system of sewage, and Mr. Willet, C. E., Aberdeen, superintended the work. An outfall sewer nearly a mile in length was carried along the side of the Loch till opposite Orchard Bank, where it falls into two screening tanks, communicating with a well from which the sewage is pumped. The outfall sewer, which is 2 feet in diameter at its outlet, is capable of delivering 2,000,000 gallons of sewage per diem, and has overflow weirs to relieve the pressure of exceptionally heavy rain storms. The sewage is lifted 50 feet to a sewage farm by three 10-horse power horizontal condensing engines, capable of raising from 45,000 to 50,000 gallons per hour. The following is a description of the scheme as applied to Forfar quoted from Bailey Denton's work, Ten Years' Experience of Sewage Farming, published in 1880. The same description still applies with the exception that 7 acres have been added to the number for surface irrigation. The quantity of land prepared at Forfar to receive and cleanse the present sewage is confined to about 24 acres only out of 40 acres, and the mode of treatment adopted is intermittent downward filtration, combined with surface irrigation. The area of the land devoted to intermittent filtration (as in Kirkintilloch) is 7 acres, leaving 17 acres for surface irrigation. The soil is of a free and open character, sandy and gravelly in parts, though occasionally partaking of a somewhat loamy character. The land may be described as admirably suited for the filtration of sewage, but in order to avoid all chance of supersaturation, a main under-drain, with subordinate drains, has been laid, which will keep down the subsoil water, and secure aëration, and so allow of perfect percolation of the liquid distributed over the surface of the ground. The filtration areas are laid out in a series of terraces, each terrace being on a perfect level to be intersected by main furrows, traversing their whole length, with branch furrows cut at right angles to the main ones. The main furrows are deeper than the branch furrows, in order that they may receive the solid matter floating in the sewage, which will deposit itself in them, and allow the liquid to be distributed by the branch furrows evenly through the soil. The intermediate ground between furrow and furrow is planted with vegetables, the roots of which help themselves to what they require of the sewage, and will yield abundant crops. The terraces forming the filtration areas, and the delivery of the sewage to them, are so arranged that each terrace can receive its quantum of sewage separately from the rest, or two or three can be served at the same time, according to the quantity of sewage to be disposed of. After they have received their fill, the sewage will be turned on to other terraces, which in their turn will receive their quantum. By this means that intermittency of application and consequent aëration, upon which the oxidation of the putrescible ingredients of sewage depends, will be effected.

The fields laid out for wide irrigation are prepared very differently from the filtration areas, inasmuch as the sewage is distributed over them on the 'catch water' system, without any great alteration of the surface configuration. The distributing carriers follow the natural contour of the land. When filled, the sewage overflows their edge, and runs down the natural slope of the land towards the next carrier, which is again filled to overflowing.

The whole is under the charge of the 'waterman' who controls and distributes the sewage in suitable quantities by means of 'stops' which he places in the carriers, when required to check the flow.

Our superintendent informs me that his general rotation on the surface irrigated land is two years' grass and two years' turnips, with occasionally a piece of barley or oats. The crops in the filtration areas are generally cabbages, carrots, mangolds and yellow and Swedish turnips. He tells me that in the winter time the most

SEVERE FROST NEVER INTERFERES

with the absorption of the sewage in the filtration areas, and that without them in severe winters he could not make away with the sewage, which would pass over the frost bound surface of the irrigated grass land almost unchanged. This accords with the experience of other places where the temperature of the sewage was found to have been 8 to 10 degrees warmer than the air....The body of sewage in the furrows tends to keep the soil open. In the winter, the filtration areas receive almost the whole of the sewage. In summer the grass receives as much as it can take, and the remainder is applied to the filtration areas.

The chief points, remaining to be considered are—(1) is it a financial success? and (2) is it satisfactory from a public health point of view? First as to its financial results. The question for towns situated like Forfar, is not how they may make a profit out of their sewage, but how they can get rid of it at the least possible cost to the ratepayers and at the same time in the most satisfactory manner for the public health, and I think our present scheme has successfully fulfilled both those objects. I find from figures supplied me bythe superintendent, that the income and expenditure, from 15th May, 1887, to May, 1888, would be as follows :—

Gross Income from Farm, including Rent of Farm-house				£432 19 11
Total expense of Working Farm, Feu Duty, Taxes and Insurance.	£230	5	1	
Rental of 40 acres—£1, 10s per acre..	60	0	0	
Interest on £1,500 at 4 per cent.....	60	0	0	
				£350 5 1
Leaving a balance of.....				£82 14 10

The average annual surplus for the six previous years, calculated on the same basis, was £62, 2s. 4d. This is, I think, a more satisfactory result than we could have got from any of the various chemical or other processes. The products do not fluctuate so much in value, and the Commissioners are not put to the trouble of acting as manure merchants on a small scale. Full advantage has not as yet been taken of the whole of the works, which can in future be extended to the town's farm of Whitewells, adjoining at comparatively little expense

The second question—is it satisfactory from a public health point of view?—I think can without hesitation be answered in the affirmative. The general health of the town, judged by the death-rate, is very good. The death-rate for the past two years was 14-2 and 15-4 respectively, a sanitary record which has seldom if ever been beaten by manufacturing towns of a like size. Three families reside on the farm, and in no instance has disease been traceable to the operations, nor any complaints made of disagreeable effluvia arising therefrom. The Superintendent's house, and the old farm house, are situated almost in the middle of the farm, and so freely exposed on all sides to any emanations, which might be expected to arise. The house of the engineman is more immediately in contact with the raw sewage, being only about 15 yards from the pumping well, and 50 yards from the ponds, in neither of which disinfectants are used. I have always been medical attendant of the engineman's family, who have been exceptionally healthy, and I never attended them for any illness which could be attributed to the sewage.

QUARANTINE.—Dr D. P. Wise (mem. Ohio State Board of Health), in a paper on Cholera and qurrantine says: If the contagion of cholera consists of a microbe or germ, which is communicated from person to person, and is transported from one locality and hemisphere to others by maens of human agency, it is self-evident that measures which restrain or inhibit commercial or social intercourse between different nations and localities must be of infinite importance; and observeing from the report of the American Consul at Marseilles that the epidemic of cholera had raged in that city for a period of two weeks and the death-rate had attained the highest number of seventy per day before the Department of State ordered him to employ a competent physician to examine vessels which cleared that port for the United States. "It would seem highly necessary that a competent medical inspector should be permanetly connected with every seaport consulate, who should be required to make a thorough inspection of every vessel bound for the United States and this should be done with reference to all infectious diseases, whether an epidemic is prevailing or not."

THE LIABILITY of landlords in regard to the sanitary conditions of their houses is gradually coming to the front. Many sustained actions for damages to tenants have been reported, especially in England. It is evidently becoming to be recognized by courts that when a landlord or his agent lets a house, he is responsible for the consequences of all structural defects, and can not be allowed to plead ignorance; he must make it his business to see that everything is in perfect order. Local sanitary authorities should see that the drains, &c., of all new houses are constructed in the most approved manner in all points as regards health.

REGULARITY AND SYSTEM AND HEALTH.

WHILE irregularities in many things relating to man's life and habits tend to invigorate the physical organism of some individuals and on the whole to favor the development of a more vigorous race, by the destruction of the weaker and the "Survival of the fittest," and while, indeed, it is impossible for man to live without a certain amount of irregularity, anything approaching an extreme in this way is to be deprecated; and even in his little irregularities there should be system or regularity. Physical exercise, so conducive to strength, to be of much service must be taken with regularity, as also should our out-a-door walks in the cold air. Behold the regularity of everything in nature—of the universe. Man, it is true, alone, of all things mundane, is to a limited extent beyond nature, in his "free will" power, yet physically he is subject to the natural laws, and to succeed perfectly, he must conform closely to these laws. Such regularity is there in all that relates to the physiological functions, that the arm will put forth greater force in labor and the stomach in digestion, if called upon to act at a regular hour every day; so it is likewise with the brain. Above all, as everybody knows and as is so commonly illustrated, sudden irregularities—sudden changes in habits are injurious. Man may accustom himself to almost anything, but the change toward it must be gradual, a sort of regular change.

Although a certain amount of change, irregularity in the diet, it may here be observed, especially with the seasons, is desirable, the constant, incessant and universal change from day to day in articles of food to which a great many people habituate themselves, is greatly to the disadvantage of mankind. It tends to imperfect digestion, "indigestion," so universally complained of, and hence to mal-nutrition; to over eating, and so to almost any sort or all sorts of disease.

To make most of life man MUST accustom himself to a large amount of system and regularity in all things. This is especially the case with the professional man or those who live by mental effort. The ordinary laborer or mechanic may live an irregular life and go through with his coarser mechanical muscular work without great loss comparatively, but not so the man who would succeed by the delicate original work of the brain. The man who irregularly eats late suppers and attends late parties and club dinners, or indeed dissipates in any way, cannot execute successful mental work. It is lamentable that social evenings, or rather night entertainments, are not given at earlier, more rational hours.

Both health and success in life demand system and regularity in everything: An hour—a "Time for everything." A Philadelphia paper some time ago said: "We called upon a preacher the other day—one of the most eloquent and able men in the pulpit of this State. He was in his study, which was out of his house, and his wife simply had to say that there was no way by which she could get at him even if she should wish to see him herself. He was wise. He had his regular hours of labor, which no person was permitted to interrupt. In the afternoon he could be seen; in the morning never." And so it should be with more or all literary men, and much the same or on the same principle with professional men and men of business.

POISON IN THE BREATH.—At the last meeting of the Académie des Sciences, Prof. Brown Sequard referred to some experiments he had conducted with a view to determine what were the toxic effects of the human breath. In condensing the watery vapor from the human lungs he obtained a poisonous liquid capable of producing almost immediate death. This poison is an alkaloid (organic), and not a microbe or series of microbes, as might have been imagined. He injected this liquid under the skin of a rabbit, and the effect was speedily mortal. The animal died without convulsions; the heart and large vessels were engorged with reddish blood, contrary to what is observed after ordinary death, when the quality of blood is moderate and of dark color. In conclusion, this eminent physiologist said that it was fully proved that breathed air contained a volatile poisonous principle far more dangerous than the carbonic acid in it, and that the human breath, as well as that of animals, is highly poisonous.

CORSETS AND DRESS REFORM.

BY LYDIA E. BECKER, AT THE BRITISH ASSOCIATION MEETING.—EXTRACTS FROM A PAPER IN THE SANITARY RECORD.

THE recent exposition of the physiological bearing of waistbelts and stays, by Professor Roy and Mr. Adams, at the British Association, has given rise to much comment, and as one of the supporters in the discussion of the wearing of these articles, I have been invited by the Editor of the Sanitary Record to develop my views on the subject in the columns of this periodical. In so doing I propose to leave recondite questions of physiology to be dealt with by professed scientists, and to limit my observations to practical questions of expediency and experience.

For a long period discussion of the subject has been mainly in the hands of those physiologists and dress reformers who believe not merely that the distortion of the figure by tight lacing is injurious, a matter on which there can hardly be two opinions, but that the corset commonly worn is in itself mischievous, and that women would do well to discard it as an article of dress. It is perhaps, not surprising that up to the present time the opponents of stays should have almost monopolised the field of discussion. As the condemned articles of attire are in practically universal use, the wearers of them have had no need to engage in controversy in order to make converts. . . .

But in these days the oldest and most cherished institutions are liable to have their right to existence challenged, and to be put on their defence; it is therefore satisfactory to find that the innovators are no longer to have the controversy all their own way. The war has been carried into the physiological camp of the enemy by two gentlemen well capable of coping with the opposing forces, but into the special field of their discussion it is not my present purpose to enter. . . . The recommendation of the anti-corset party appears to that, while retaining the ordinary form of bodice and long skirts, the weight of these should be thrown entirely upon the shoulders, and that the body clothing should be limp and loose, with no firmness or support round the waist.

Now this is a proposal which, though it might possibly be contemplated with equanimity by short women with slight figures, would be calculated to strike dismay into the minds of tall women who have not the advantages of slender forms if they believed that the dicta of either physiologists or modistes would be likely to impose upon them its adoption. I hold that in both of the propositions on which the proposal is made—namely, that the weight of the clothing should be raised to the shoulders, and that there should be no support or girdle round the waist, the dress reformers preach false doctrines, both physiologically and æsthetically, and that the authors of the Bath paper are right when they affirm that.

IF NOT LACED TOO TIGHT,

the modern corset, by clasping the waist and supporting the bosom and back, constitutes a convenient combination of the different forms of girdle which have been found useful by the women of all civilised nations. Moreover, I am convinced that the experience of the vast majority of women will emphatically endorse this proposition.

The corset affords a firm foundation for the outer garments, and gives a degree of comfortable and equable warmth which no loosely-fitting bodice can afford.

To secure these advantages the corset should be well modelled, and not to tightly laced. The lacing arrangements should be ordered as to admit of being tightened or loosened, as occasion may require. The corset should afford moderate compression to the waist and lower part of the body, and give freedom of expansion for the chest. There should not be the slightest pressure on the chest or above the waist. . . .

The kind of corset chosen should be adapted to the habits of the wearer. The rule should be simply to take that kind of stays in which she can best get on with her, work, and feels most comfortable while doing it. . . .

The use of stays tends to cause an upright carriage, while suspension of the clothing from the waist and hips relieves the spine from the weight, and the lungs from the pressure of burdens thrown upon the shoulders.

The principles of mechanics point to the advantage of placing weights to be borne by an upright body as near the centre of gravity of the body as possible. In the human frame the pelvic arch, supported by the legs, forms a strong and steady base for the superstructure of the rest of the body. From this firm foundation rises the flexible curved, serpentine spinal

column, strong at the base, but becoming more slender and flexible as it rises . . . To clothe the body with the least expenditure of nerve force, it stands to reason that the clothing from the waist downward which under the conditions of our problem must consist of loose, flowing drapery, will be more advantageously placed by resting directly on the solid base at the hips than by being placed high up near the top of the bending flexible spine. . . .

Men who recommend women to discard stays and hang their clothes from the shoulders seem to overlook a considerable difference both in the physical configuration of men and women and in the character and weight of their clothes. Some months ago the *Lancet* called attention to the weight of women's clothes in the following terms :—This is a phase of the dress question which has been too much overlooked. The clothes worn by women are, as a whole, far too heavy ; and by a perversity of fashion, they receive an enormous increment of weight at this season in the shape of cloaks or mantles of sealskin or plush with quilted linings. The attention of medical practitioners needs to be especially drawn to this matter. . . . .

As to dress reform, so long as skirts must be carried, the least burdensome mode is to attach them to shaped band which lies flat round the hips. This method will be found convenient both by those who do and those who do not wear stays.

The really mischievous element in the ordinary dress of women is not the corset, but the layers of long skirts with which the back and limbs are overloaded. Women have the remedy for this mischief very much in their own hands, for it is possible, without departing in any noticeable degree from the prevailing fashion, to minimise the evil to a very low degree—perhaps to the lowest point of inconvenince and restraint attainable by any form of modern costume worn by either sex. The evolution of fashion has of late years tended distinctly in the direction of reasonableness and convenience in women's dress. Undoubtedly, the wasp-waist and the camel-hump are fearful distortions, but the adoption of these eccentricities is not a matter of necessity. A woman who is content with a waist of natural proportions and who refuses to add a hump to her figure may not only appear in public without being hooted and persecuted as she would be if she were to venture on any originality of costume, but may even attract admiration for her natural graces.

An examination of modern fashion-plates reveals the comforting fact that not only are the feet visible but that the shortest length of the skirt is at the back. Perhaps at no distant date fashion may decree that ankles shall be worn, in which case a little more will be left to be desired. . . .

The overskirt alone, if properly made and hung, is not necessarily a cumbersome garment. The drag and discomfort are principally caused by a multiplicity of underskirts. If substantial, close-fitting undergarments are worn, the underskirts, whether single or 'divided,' may be discarded altogether, while the dress-skirt, made according to the prevailing style preserves the traditional and orthodox fashion of women's dress, and enables the really rational dress reformer to effect whatever changes are desirable without inviting persecution of observation.

The advocates of corsets are taunted with the example of the Venus de Medici, and asked if they are prepared to improve upon the Greek ideal of beauty. Certainly not. . . The Venus is probably not an actual protrait of a woman who lived, but the expression of a sculptor's ideal. Moreover, she represents a woman in the flush of youth and beauty ; she does not grow old, nor alter in shape and size ; she never steps down from her pedestal, and she is not encumbered with garments. She is, therefore, not a pratical ideal for the imitation of the women of to-day. . . .

There is probably no fashion that has persisted that has not had a good reason for its existence and countinuance. . . . The wildest vagaries of costume which have become established for any length of time in any part of the world would be found, if their history could be traced, to have origin in the gradual preservation and development of some variety of fashion which has been found useful in some way to the wearer.

In the design of dress, agreeableness of appearance is a consideration of co-ordinate importance, with those of health and comfort, and, indeed, is a matter highly conducive to both. However perfect, from a hygienic point of view, a costume may be, if it is ugly and unbecoming, a woman of properly constituted mind will not be happy in wearing it. If man cannot live by bread alone, neither can comfort exist by bodily comfort alone : there must be mental satisfaction as well. It would be a dismal world indeed if men and women began to be generally indifferent to personal appearance. It is a matter for regret that the present inartistic fashion of men's costume has susperseded the more picturesque and, as far as one can imagine, equally useful style of a former generation ; but it is something to be thankful for that woman's dress preserves the liberty of the use of bright colouring and rich materials. Cardinal Newman has happily expressed in the following lines what should be a leading 'note' as regards woman's festal dress :—

Ladies, well, I'deem, delight
In comely tire to move ;
Soft and delicate and bright
Are the robes they love.

Silks, whose hues alternate play
Shawls and scarfs and mantles gay,
Gold and gems and crisped hair,
Fling their light o'er lady fair;
'Tis not waste, nor sinful pride,
Name them not, nor fault beside,
But her very cheerfulness
Prompts and weaves the curious dress.

Common sense will dictate the adaptation of the dress to the occasion on which it is to be worn, and undoubtedly there is much scope for reform on the practice of the masses of the people in this respect. The outdoor or working dress should be simple and comfortable, but not therefore unbecoming. The more ornamental costume should be reserved for change, and for more special occasions.

The pratical conclusions that commend themselves to me as most reasonable to promote health and comforts in women's dress may be briefly summarised as follows:—To retain the corset, taking care to have it well modelled and comfortably laced, and to eschew all attempt to reduce the waist within a given number of inches. To the use the corset as a support and foundation for the over-dress. To place the weight of the garments as far as practicable on the hips, and to avoid placing weight or tension on the shoulders. To reduce the total weight of the clothing as much as possible, and to arrange the underclothing in such a manner as to enable the wearer to dispense with unecessary underskirts To wear the dress skirt as short, especially at the back and sides, as is consistent with an agreeable and presentable appearance. I believe that by attention to these and other details, which may be suggested by experience, health and comfort in dress may be attained by woman without recourse to the revolutionary proposals which some dress reformers desire them to adopt.

PHYSICAL EXERCISES FOR WOMEN AND GIRLS.

THIS is a subject which is receiving vastly more attention than in years past; and indeed it is high time that it is so. The following practical notes we take from recent numbers of the British Medical Journal: More general interest ought to be felt in the importance of physical training for girls. It is not enough that their mental powers should be trained, the general laws of hygiene obeyed, and their dress arranged so as not to be harmful. It is also necessary that scientific care should be used in aiding the regular and systematic development of their bodies. Scientific calisthenics should, moreover, have an aim beyond this, in exercising and training the nerve-centres. The work of the drill sergeant may suffice for getting up the muscles, but in endeavouring to train the brain by use of calisthenics, it is necessary that the teacher should produce accurate, harmonious and graceful movements, independent of the amount of muscular exertion. Last week the Princess of Wales took part in the Centenary of the Royal Masonic School for Girls, as celebrated at the Albert Hall, when a striking feature of the ceremony was the performance of some beautiful calisthenic exercises by the girls, with free movements, marching and drill. Calisthenic exercises, when conducted on scientific principles, are of great value in regulating the nerve-centres: well co-ordinated series of movements imitated from the teacher, or produced to the word of command, tend to produce a well-knit nerve and muscular system responding with ease and gracefulness to impressions received through the eye and ear.

The tendency to asymmetry of postures, and ill-balanced positions of the head and spine, with excess of movement, is often pronounced in growing girls, especially those of hysterical temperament; such conditions may be checked and brought under control through the eye and ear. Quickness of brain action, and of the interaction of the sense and the hands, may be cultivated by exercises with balls.

There is another advantage in such exercises, as the ball is thrown or caught by the child the eyes follow the moving object as it recedes or advances towards her, and thus the power of accommodating the vision is brought into play. In young and delicate girls great care is necessary in using such exercises as throw great strain upon special groups of muscles, and in the use of exercises designed to regulate brain action fatigue should be carefully avoided, and throughout the lesson the signs of weakness and exhaustion should be carefully looked for, so that the strain may not be injuriously prolonged. To conduct such exercises and training with

success, especially in weakly children, requires special training and skill in the teacher.

ATHLETIC EXERCISES FOR WOMEN.—A modern development of athletic training is seen in the formation of volunteer fire brigades, which meet for periodical practice. Fire brigades for ladies have been formed at Girton and Newnham, and more recently at the Royal Holloway College. Mr. Merryweather, at the request of the principal of the latter college, has organized the lady students into a brigade, and reports that in a preliminary drill they showed much alacrity in the performance of their duties, the majority being very quick and agile in making the connections with the hydrants, running out the hoses, working the fire-pumps and corridor engines, and various other manœuvres. The students drill in sections, the respective floors being allotted to different detachments in order to secure their familiarity with the requirements of each part of the building. Such brigades are useful; they diminish the probability of disorder and panic in case of fire; the drill is healthful exercise, and adds to the general *esprit de corps* which should prevail in an educational establishment.

THE COMPLEXION AND ITS FOES.

THE foes to a clear, ruddy, smooth complexion, Maru Müller says, though manifold, may usually be classed under the following heads: 1. Over eating and lack of out-door and other exercise. 2. Insufficient friction of the neck and face, with deep rubbing and massage. 3. The too general use of cosmetics and face powders. 4. An improper use of soap and water. The faded, tawny complexion of the average American woman, at an age when health should be at its height, and, consequently, color—color suggestive of the delicate pink of deep-sea shells—is a lamentable fact, and may be largely accounted for by *intemperance at the table.* The variety, abundance, and so-called "good cheer" which characterize the boards of the upper and middle classes in this country are proverbial, as well as the consumption of "innumerable indigestible compounds" which enslave the appetite, and, as Felix Oswald in his "Physical Education" caustically remarks, "tempt one to eschew all symbolical interpretation of the Paradise legend, and ascribe the fall of man, literally and exclusively, to the eating of forbidden food." Says a leading hygienic writer and physician: If our tables do not supply the elements which go to make healthy bodies—by the formation of proper blood-corpuscles, out of which the various tissues are made—we must be content to have faded cheeks, flabby muscles, dull, sunken eyes, toothless gums, and bare scalps, nor deem it strange if what we have left is little more than a bundle of nerves.

It is not our purpose, however, to give a lengthy dissertation on this subject, but rather to emphasize the importance of proper food in proper quantities. If, day after day, more food is taken into the stomach than the bodily organs can readily assimilate, the residue accumulates in such quantities as to overburden the organs which eliminate the waste matter from the system. To illustrate: Who has not at times felt an uncomfortable, depressed feeling, commonly termed "biliousness?"—a state largely due to the inadequacy of the liver and other eliminating organs to throw off the waste accumulations which more or less poison the blood and affect the appearance of the skin. A fine complexion, then, such as nature delights to bestow on those who honor her laws, means denying the appetite, and duly choosing that it is wiser to "eat to live, than to *live* to eat."

COSMETICS.—The use of cosmetics to beautify and protect the skin is as legitimate as the use of glycerine and rose-water to cure chapped hands. The evil is not so much in the use but in the abuse of the articles. Powders can not be other than injurious as they are used by the majority of people. Anything which covers up the the skin must be of only temporary benefit, if not a positive injury; as, while it is on the face, the pores of the skin, which nature requires should be left unclogged, are filled up. Paints of any kind are abominations. Many cosmetics contain lead and are highly injurious. Fine rice flour is perhaps the best application for smoothing the skin and protecting it from the effects of wind on going out.

CLEANSING THE HANDS.—Dr. Vogen, Eisleben, says that coppersmiths, tinsmiths, etc., whose hands become covered with dirt from working in oxides and acids which cannot be removed by ordin-

ary means, first rub their hands with warm oil and then, when this has thoroughly penetrated, with powdered borax, subsequently washing with soap and water. He advises those who have to use carbolic acid to go through the process above described first, and claims that in this way (1) disinfection is more thorough; (2) the hands are made purer than it is possible to make them by soap alone; (3) the hands remain soft and free from rough epidermic scales, and the odor of carbolic acid is destroyed.

FOR STYE, simple and effective remedy has been found to be a solution of fifteen grains of boric acid to an ounce of water. By applying this solution three times a day to inflamed part of the eyelid, as by means of a camel's hair brush, this painful and annoying affection will usually be conquered very rapidly.

DOMESTIC REMEDIES.

[THE HEALTH JOURNAL will not enter the domain of cure but will suggest remedies for cases only in which from being simple or of long standing, sufferers will usually resort to quackery.]

CHRONIC RHEUMATISM.

As to climate, Sir James Clark, physician to Queen Victoria, says: "It produces the most decidedly beneficial effects, and that often with surprising rapidity, even in cases of long standing, which have resisted the best directed medical treatment." He recommends Rome or Nice; the former when there is any irritability of the digestive organs, which the latter is liable to intensify. Doubtless, many places on this side of the Atlantic are even more suitable as resorts for "rheumatics," than Rome or Nice. Many localities in the Carolinas, Virginias and Tennessee, somewhat elevated, dry and well-protected from damp, cold winds, would afford much relief, if not a cure, for many of this class of sufferers, who could afford, or make it convenient, to go there. Great benefit is often derived from the warm spring and hot spring baths of Virginia.

But, after all, as many will probably be glad to learn, we believe, as a rule, much more can be done, both in the way of preventing the more severe symptoms and of cure, by a judicious hygienic regimen at home, than by any other treatment. We have not space in this number to enter fully into the details of what we have found to be the best hygienic course for a "rheumatic" to pursue at home, relating to diet, baths, exercise, etc., but will in an early-following number. Meanwhile we would urge in all the "colder" forms of the disease the importance of keeping the limbs well clothed in all-wooll flannel. We have found extra thicknesses of warm flannel over troublesome joints and other parts very useful. It is most desirable to have the skin in a healthy, active condition, and for this and regulating the circulation, nothing equals the warm bath, at a temperature of from 95° to 97° F., according to the feelings of the patient; further details of which, however, must be deferred. Dr. Barlow, of the Bath Hospital, Eng., a writer who has had much experience with this disease, says: "Warm bathing and active exercise are among the unexceptionable and most powerful means of relieving chronic rheumatism."

TO PREVENT AND CURE LAME FEET caused by too much walking, according to the Sanitarian, a powder called "Fustreupulver" by the Germans, and extensively used in the army, by sifting it into the shoes and stockings, is equally commendable for letter-carriers and others subject to like conditions. It consists of 87 parts of pulverized soapstone, 10 parts of starch, and 3 parts of salicylic acid. It keeps the feet dry, prevents chafing, and heals sore spots.

SOME NEW REMEDIES.—A Swedish physician has ordered the Queen of Sweden to make her own bed, and to dust and sweep her own room, besides engaging in other manual duties and out-of-door exercise, as a means of cure for a nervous disorder. "Golden Rule" suggests some other like remedies: such as the "office-boy cure" for the dyspeptic millionaire; the "stevedore cure" for the nervous merchant; the "stable-boy remedy" for Crœsus, with the liver complaint; the "penny-postman cure" for Midas, who is suffering from the accumulation of too much adipose tissue; and the "nurse-girl cure" for fashionable Mrs. Hysterics, who cannot stand the noise of a crying baby.

SEWER AIR.—The Medical Record, on Sewer Air Diseases, says:—The tendency of sewer-air poisoning is to derange the organs of primary assimilation, or digestion, rather than the lungs; as, for example, the stomach, bowels, liver, &c., giving rise to diarrhœa, colic and inflammation of the bowels. Besides these effects, the debilitating influences of the polluted air render the persons so affected an easy prey to an interrupted malady. Sewer air is more likely to affect weakly and anæmic persons. Among the symptoms, when no specific disease germs are at work, are general malaise, headache, loss of appetite, with dyspeptic symptoms, drowsiness, and slight feverishness. There is a marked tendency to anæmia and general debility. These symptoms are frequently grouped under the name of "malaria".... Fungi readily grow in such air, and articles of food, such as meat or milk, soon become tainted and decompose when exposed to it. The gases making up sewer air possess considerable diffusive power, and will pass easily through walls and porous earthenware or brick sewers. In this way they frequently find their way into cellars of houses, especially in the vicinity of a broken sewer or improperly constructed cesspool. Experience shows that stagnant sewage gives off more gas and is more dangerous than that which is kept in motion Sewer drains which have a steep grade are, therefore, to be preferred. Frequent flushing with no chance for stagnation and with good ventilation, the danger is reduced to a minimum. If a piece of filter paper be dipped in a solution of lead acetate ("sugar" of lead) and be exposed to an atmosphere containing sewer air, it turns dark brown, and finally black.

CRIMINAL CARELESSNESS.—The St. Louis Courier of Medicine gives the two following instances of "criminal carelessness" and probably manslaughter. A young man in a theatrical troupe playing in that city, had been ailing for several days. On consulting a physician he was informed that he had measles, and left the same evening for his home in New York, a journey of a thousand miles in public conveyances in which he was certain to expose to the disease some of those with whom he would necessarily come in contact. A wealthy and intelligent gentleman and wife, residing in St. Louis, were visiting in an eastern city, when one of their children became ill. A physician was called in, and pronounced the disease to be scarlet fever. These highly intelligent people (?) took the next train for St. Louis with their sick child, and by their reckless, selfish disregard of the rights of the public, exposed to this fearful disease every other child in the cars in which they travelled, and not only that, but children who should travel in the same cars for an indefinite period afterward. Would it be too much to claim, says the Courier, that a person who in his own person, or in the person of a child, thus carries in a public conveyance the virus of a disease which may thereby be imparted to another, has just as flagrantly violated the law which forbids taking the life of another, as does the man who recklessly handles firearms in a crowd, and should be held responsible for the results of his act when traceable to him, both in civil suit for damages and in criminal prosecution for manslaughter, as surely in the one case as in the other?

THE CIGARETTE ABOMINATION.—The following denunciation, not any too severe, of the cigarette nuisance, from the New York Journal of Commerce, should be widely circulated:—If the inventor of an unmitigated nuisance deserves to be cursed by his own and succeeding generations, then the manufacturer who first produced the cigarette ought to face Mount Ebal all the days of his life, and leave his memory subject to the same anathema. There is not one redeeming feature about this abominable pest. It is noxious to the smoker, and when used in public is a foul offence to the victims of his incivility. A cigar composed of fragrant tobacco may be *tolerated* even by those who make no use of the weed; and a lighted pipe may be submitted to, as gentlemen who solace themselves away from their homes in that fashion, seldom intrude among those likely to object to it. But the cigarette, with its vile odors, finds its way everywhere, and is oftenest lighted where it is certain to be most intolerable. From the indecent cuts that herald its pet name to invited customers, all the way to the exhaled stench that signals its destruction, it is unwholesome, insalubrious, pernicious and debasing to all concerned....With regard to their evil effect on the health of the smoker, there are not two opinions among those who are best qualified to judge. Our most eminent physicians and chemists speak with united voice when they warn the public against the increased danger of poison from the deadly nicotine, and the injurious consequences certain to follow this indulgence. ....One of the greatest evils connected with the invention is the special temptation thus offered to the use of tobacco by the young. No child ought ever be allowed to touch the weed in any form; but here we have it in its most dangerous guise prepared especially for the consumption of those who are yet in their infancy....The

evil is two-fold: the boy is ruining his health, and he is making himself an intolerable nuisance by contaminating the air wherever he goes. A gentleman seldom smokes in the street or in any public place, or if one is so thoughtless as to do this, it is usually a cigar, the odor of which may be endured. But a boy with his cigarette will puff the offensive smoke in the face of every one he meets with that reckless freedom peculiar to this class of young Americans....Perhaps the wisest course to pursue, in view of the deleterious effects of the indulgence, is to legislate against the use of the cigarette in public. Boston became so indignant many years ago at the freedom with which tobacco was burned in the streets of that municipality, contaminating the atmosphere of its leading thoroughfares, that all smoking in public places was forbidden throughout the great metropolis under penalty of a fine of five dollars, to be imposed and collected by the nearest magistrate. The police were very diligent in enforcing the ordinance, and for a long period a visitor might spend weeks in the city and if he did not smoke himself might never once get the smell of a pipe or cigar. If such action were taken here the abuse would be greatly checked.

SCHOOL AGE.—Dr. Daniel Clark (Supt. Asylum for Insane, Toronto, Ont.), in a paper in the Journal of Insanity, on education in Relation to Health suggests that education should be conducted somewhat as follows :—1. No teaching beyond object lessons up to six years of age. 2. Object lessons with reading and writing up to nine years of age. 3. Reading, writing, arithmetic in its four primary divisions, and geography up to twelve years of age. 4. The preceding with history and primary arithmetic and grammar up to fifteen years. 5. From this age such studies as will assist the girl in feminine duties, and the boy to some definite employment or profession. 6. No studies in evening until after fifteen years of age. 7. Three hours daily of school time up to nine years, of age four hours to twelve and six hours until fifteen of age. 8. After fifteen years of age studies to be intermingled with congenial and useful mechanical work. This to apply to both sexes

ETIOLOGY OF CANCER.—Dr. H. G. Matzinger (Med. Press), from a study of this subject, concludes : 1. It appears that a predisposition is necessary for the development of cancer, and that the only predisposing cause we are acquainted with is either inherited or acquired senility of tissue, which may be general or local. 2 That this condition is favored and hastened by anxiety, distress, overwork, excesses of all kinds, syphilis, gout and advancing age. 3. That if offspring are produced after that state has been developed, such offspring may and very likely do inherit a tendency to cancer formation. 4. That cancer, therefore, need not necessarily be inherited. 5. That cancer formation depends on some specific virus for a direct or exciting cause, and that it is *infectious disease*. 6. That the bacillus of Scheurlen, or its products, very likely constitute the specific virus. 7. That since cancer does not differ materially from any of the infective granulomata, it ought, like these, to be in some degree amenable to internal treatment, both prophylactic and curative.

ON MODERATE DRINKING.—Dr. Wm. Roberts, of Manchester, Eng. writes in a recent number of the British Medical Journal, as follows:—Those who have paid attention to the point have failed to notice that teetotallers are, for the most part, something more and besides abstainers from the use of alcohol—and that they conform to a fairly distinct type of character. A teetotaller is usually a man careful to his health—steady and regular in his habits. He gives heed to his clothing, his food, exercise, rest, and amount of work. He fights the battle of life warily and not recklessly. These are just the kind of men that insurance men like to get hold of.... Those who believe, on certain very strong and broad grounds, that the use of alcohol must be of some important service to man (were it possible to express it without involving a contradiction in terms) that the typical teetotaller might still further enhance his expectation of life if, while preserving his other habits, be added thereto an equally careful use of alcohol.

DISTINCTIVE MARKS OF GOOD AND BAD MEAT.—Personally, I am of opinion that the flesh of all animals in whose body any specific constitutional disorder transmissable to man has existed should be condemned for human food. In like manner the flesh of animals that have suffered from any form of disease, such as fever or inflammation of important organs, and in which the nutrition of the tissues has been interfered with, as shown by marked changes in the normal character of the flesh, should also be condemned. The conditions which, in my opinion, warrant an Inspector of Meat in condemning animal flesh for human food are :—(*a.*) An excessively dark colour of the muscles—indicating interference with oxidation. (*b.*) An excessively dark colour, coupled with a deep yellow—indicating interference with oxidation and absorption and retention of biliary matters. (*c.*) Iridescence of the surface of a cut section—indicating material interference with nutrition of the flesh, and probably some form of degeneration of the muscular elements. (*d.*) A universal magenta or pink colour of the

flesh-indicating material changes in the blood itself, and especially the colouring matter of the red cells. (*e.*) A green colour of the flesh -indicating putrefaction. (*f.*) Extravasation of blood into the deeper tissues, or universal superficial extravasation, as indicating also important blood changes. (*g.*) Effusion of serum into the cellular tissue, especially if this effusion is general and deep seated, and still more particularly if this effusion is tinged with blood and is thrown out in close proximity to the bones; all indicating some form of degradation or depravation of the blood, as the result of fever, organic disease, the action of poisons, and improper dieting. (*h.*) A flabby or flaccid condition of the flesh, particularly if that condition is associated with a soapy feel to the fingers, and if the flesh pits on pressure. (*i.*) Any odour indicating the commencement of putrefaction, particularly if found in close proximity to the bones.—*Prof. Walley at the meeting of the Sanitary Association of Scotland.*

AT THE RECENT MEETING of the Sanitary Association of Scotland, Dr. McVail in an address on the Methods and Objects of Preventive Medicine, said that, broadly speaking, there are three great lines of defence, sanitation, inoculation and isolation. By sanitation he meant the production of such conditions of air and soil and water as shall not be consonant with the existence of the specific organisms of zymotic diseases. The perfecting of this first line of defence formed the daily and regular work of the sanitary inspector. The second line he had named inoculation as indicating a theory at present, rather than an actuality, as in only one disease (small-pox) was this method of protection of avail. The third method of protection was isolation, and to this some of the greater triumphs of protective medicine were due. As regards the results of preventive medicine, Dr. McVail showed that in England and Wales no less than 100,000 lives were annually saved by its means. Dr. J. B. Russell then read a paper on the Sanitary Enfranchisement of the Rural Population of Scotland. He said all true sanitation must begin in the houses of the people, and must be specially and directly maintained out of the pockets of the people, and controlled by their votes. Health administration must therefore be educative if it is to be successful.

THE HEALTH OFFICER of Glasgow, the well known Dr. J. B. Russell, says—and than which there is no truer saying—that as all true sanitation must begin in the houses of the people and must be maintained out of the pockets of the people and controlled by their votes, health administration must therefore, to be successful, be educative.

FOUR SANITARY ADVANTAGES for the town of Brighton, England, are given in a paper by Dr. Ewart of said town, (in Sanitary Record, Oct. 1888), as follows:—1st, The unrivalled site upon which the town is built. 2nd, An abundant supply of potable water of virgin purity. 3rd, An excellent system of drainage and very efficient Sanitary Department. And 4th, A (resulting low and) steadily diminishing death rate.

OIL OF BAY VS. FLIES.—As it appears evident that flies may carry infections, such as tubercular or other, there is more than one reason for getting rid of these pests. It is stated that expressed oil of bay is extensively used in Switzerland by butchers to keep their shops free from flies, and that after a coat of oil has been applied to the walls no flies venture to put in an appearance. The remedy has been tried and found effectual in France. It is remarked that flies soon avoid the rooms where this application has been employed.

SACCHARIN seems now to be extensively used as a substitute for sugar in syrups and preserves, and, a fact fully recognized in commerce, even in *champagne*. A medical commission after investigation concludes that saccharin should not be introduced into food; that it is not a food and cannot replace sugar, that its use, or that of its preparations, seriously disturbs the digestive functions and increases the affections known under the name of dyspepsia, and that it should be prohibited as an article of food. It is said that the Portuguese Government has prohibited the introduction of it into that country.

SMELL OF SOUND MEAT—FOR INSPECTORS.—From the special Paris correspondent of the British Medical Journal, Nov. 3, 1888:—In the normal state the flesh of every animal has its own characteristic odor. Beef has a specific insipid kind of smell, modified by the different modes in which the animals have been fed. Thus it is stated that the flesh and milk of cattle in the polar regions have a fishy odor, because the absence of pasturage obliges the inhabitants to feed their oxen and cows on fish. Veal smells of milk, mutton of wool and sometimes grease. The normal odor of pork is insipid and inoffensive, but when the pigs are fed on offal the flesh has a pale cachectic hue, and an offensive smell and taste. The odor of poultry fed on corn differs from that of poultry artificially fattened. In a diseased state, meat emits a typical odor resembling the breath of feverish patients. This odor is particularly noticeable beneath the shoulder, and in the muscles of the inner side of the leg. The odor should be carefully noted immediately after the incision is made. This

should be done by the inspector himself. When diseased meat is roasted it emits a strong and offensive smell. The fever odor is particularly marked in the case of animals which have suffered from peritonitis, charbon, morbid symptoms following parturition, or with ordinary acute disease. In such cases the smell is recognisable at once, and it is unnecessary to make any incision.

A NEW DEODORIZING MATERIAL for earth closets has been found out, in the form of pulverised common slag. It is said to be (Lancet) extremely porous, rendering the soil more absorbent, and is of manurial value. The following additional advantages are claimed for it: (1) The cheapness of the material, the cost being roughly estimated to be from $1.25 to $2.50 per ton, including crushing and carriage; (2) its supply being practically inexhaustible; (3) its porous property, which independent of (4) its manurial qualities, renders it valuable to clayey soil. A sample was exhibited which had been in use five weeks before, in which it was impossible to detect the slightest smell. The method of using it is similar to that adopted in earth-closets. The total quantity necessary being a third less than ordinary dry earth—six persons requiring one third of a hundred weight per week.

PLEURO-PNEUMONIA.—Professor Hamilton, at the opening of his pratical pathology class in the University of Aberdeen, last month, took for the subject of his introductory address the question of pleuro-pneumonia. He said this disease or poison, judging from their knowledge of other infectious diseases, might be supposed to be of the nature of a vegetable micro-organism, whose natural habitat was in the system of the cow; but here, as in the majority of other cattle-diseases, little care had been expended in the search for results. Complusory slaughter was the most bland confession of ignorance and helplessness, and savoured more of the work of a nation of savages than of rational and enlightened individuals.

BOUND TO HAVE CLEAN FLEET.—Surg. Gen'l. John B. Hamilton, of the Marine Hospital Service, Washington, D. C., has issued the following regulation:—1. When a vessel arrives at any national quarantine station from any infected port, and requires disinfection, she will be subjected to ordinary disinfection, as provided in former regulations. 2. When any vessel shall arrive at a national quarantine station in such foul condition as to render her dangerous from a sanitary point of view, and is found to require cleansing and disinfection, having at any former time within one year been subjected to ordinary disinfection, such vessel will be required to undergo extraordinary disinfection, which, in addition to the ordinary measures, will include a holy-stoning, scraping, the taking out of rotten wood, a second disinfection, and interior repainting, all of which will be required before granting a certificate of free pratique.

DEATHS UNDER FIVE.—In Norway the proportion of children dying under five years of age is 204·5 per 1,000 born; while in England it is 338 per 1,000, and in Italy 567 per 1,000. In fifty-one so-called "healthy districts" of England and Wales the mortality under five is 175 per 1,000 born, while in the Liverpool district, representing the most unfavorable sanitary conditions, it is 460 per 1,000. In the State of Vermont, which contains no large cities, the number of deaths under five, for the year 1883, was 23·8 per cent. of the whole number of deaths; in the State of Massachusetts, in which there are several large cities, for the twelve years ending in 1884, it was 34·74 per cent.; and in the City of New York alone, for the seven years ending in 1873, it was exactly 50 per cent. of the entire mortality.

ILLEGITIMATE BIRTHS.—The percentage of illegitimate births in the various countries of Europe is given as follows: Holland, 4.0; Switzerland, 5.5; Prussia, 10.0; England and Wales, 6.5; Sweden and Norway, 9.6; Scotland, 10.1; Denmark, 11.0; German States, 14.8; Wurtemburg, 16.4; Italy, 5.1; Spain, 5.5; France, 7.2; Belgium, 7.2; Austria, 11.1; Ireland, 3.

NUTRITIVE VALUE OF CERTAIN FOODS.—Speaking roughly, a quart of oysters contains, on the average, about the same quantity of actual nutritive substance as a quart of milk, or a pound of very lean beef, or a pound and a half of fresh codfish, or two-thirds of a pound of bread. But while the weight of actual nutriment in the different quantities of food material named is very nearly the same, the quality is widely different. That of the very lean meat or codfish consists mostly of what are called, in chemical language, protein compounds, or "flesh formers"—the substances which make blood, muscle, tendon, bone, brain and other nitrogenous tissues That of the bread contains but little of these and consists chiefly of starch, with a little fat and other compounds, which serve the body as fuel and supply it with heat and muscular power. The nutritive substance of oysters contains considerable of both the flesh-forming and the more especially heat and force-giving ingredients. Oysters come nearer to milk than almost any other comman food, their values for supplying the

body with material to build up its parts, repair its wastes, and furnish it with heat and energy would be pretty nearly the same.—Prof. Atwater, in The Century.

RUNS WHEN HE SHOULD WALK.—An old Scotch physician, Dr. Brown, says: I had a friend who injured himself by overwork. One day I asked the servant if anybody had called, and was told that some one had. Who was it? "O, it's the little gentleman that *aye rins when he walks!*" I wish this age would walk more and "rin less." A man can walk farther and longer than he can run, and it's poor saving to get out of breath. I am constantly seeing men who suffer, and, indeed, die, from living too fast; from true, though not consciously immoral, dissipation, or scattering of their lives. Many a man is bankrupt in constitution at forty-five, and either takes out a *cessio* of himself to the grave, or goes on paying ten per cent. for his stock in trade; he spends his capital instead of spending merely what he makes, or, better still, laying up a purse for the days of darkness and old age.

SOME EXPERIENCE IN MEASLES INFECTION.—Dr. Reichard, of Fairplay, Md., has closely studied three invasions of measles in that place, and gives the following conclusions:—1. Measles are spread by actual contact with the materies morbi. 2. A case in the stage of incubation may inoculate those who are unprotected. 3. It cannot be carried (as usually meant) by a protected person coming from a case of the disease to a susceptible person. 4. It does not spread through the atmosphere. 5. Strict quarantine will prevent. Had the child, when she came from Washington City, been strictly quarantined, the epidemic might have been prevented. In each of the invasions we have traced all trouble as beginning with a single person.

IN CENTRAL AMERICA, it is stated, the physician receives a yearly stipend for trying to keep his patient well. The amount of stipend varies from $150 to $400. The doctor attends in sickness and in health. This is the plan we have always advocated, and we hope it will be reproduced all over this continent

TRAPS UNSEALED by steam.—The annals of hygiene reports a case in which a soil or drain pipe had been lain in close proximity to a steam pipe that the heat from the latter had evaporated the water from the trap of the pipe.

OF CHEESE POISONING, many cases have been reported to the Ohio State Board of Health. At Urbana, 65 cases; Mansfield, 50; West Liberty, 25; Mutual, 14; Marion, 50. The symptoms were vomiting, accompanied with much pain in the stomach, and, in many cases, violent purging. The sickness usually lasted from twelve to forty-eight hours, with great prostration and in some cases syncope; no deaths were reported.

A JAPANESE SANITARY ASSOCIATION, has 4,700 members, was founded in 1883, and now has twenty-eight branches in different parts of the Empire. At the annual meeting of the association at Tokio in May, 1887, it is said there were 20,000 visitors to the hygienic exhibition.

NOTES ON GENERAL SANITARY PROGRESS.

THE INTERNATIONAL HYGIENIC SOCIETY are about to try an experiment in London which has met with success in various Continental cities, and have opened two kiosks for ladies. £2,500 will be spent on these buildings, which will afford writing and reading rooms, and two large swimming baths, surrounded by recreation grounds. It is proposed to establish altogether in various parts of the metropolis fifty similar places for ladies exclusively, about one hundred in the City for men, and swimming and shower baths in the east of London, where also food will be supplied.

TO REMOVE MICROBES FROM WALLS.—Prof. Esmarch has been making several efforts in this direction. He first projected steam from boiling water over the walls, but the number of germs was not greatly diminished. Then he used a 1-1,000 solution of corrosive sublimate; the results were not satisfactory unless two applications—24 hours apart—were made. He now had the walls rubbed down with fresh bread crumbs—an idea probably obtained from the Mosaic law—and complete success followed. Bacilli and spores were found at the foot of the walls, and were at once gathered and burned.

FISH POISONING. — According to the "Union médicale," a prize of 5,000 roubles is to be awarded in Russia for the best essay on the nature of the poison which develops in raw salted fish.

TO ERADICATE YELLOW FEVER all authorities agree, the N. Y. Medical Journal says, complete burning of the bedding is a *sine qua non*. "It is extremely important that such action should be taken, and it ought to be taken on one basis only, that of a fair compensation to the unfortunate people. The expenditure of a portion of the relief appropriation made by Congress would enable this to be done." If such a course could be taken, the "removal of every vestige of the fever would soon be accomplished, and its removal can not be made certain in any other way."

THE PRESIDENT of the Board of Health of New York, Mr. Bayles, says he believes the reason for the singular exemption of New York from smallpox is almost wholly due to the system of isolation now in use, which is wonderfully expeditious.

The PROCESS of Purifying Sewage by passing through it Currents of Electricity to which reference was made in the JOURNAL some months ago, has been patented by a Mr. Webster in England. The effect of the current, as was stated, is to cause the solid particles in the sewage soon to collect at the surface of the fluid. The inventor claims that the cost of treating the London sewage would be about $125,000 a year, while the proposed chemical process will cost $150,000. Results of experiments on a large scale will be looked for with much interest.

A DEGREE IN SANITARY SCIENCE has now been instituted in the University of Madras. The candidate for the degree must have passed the examination for the degree of M. B. and C. M., or L. M. S., and must present certificates of having attended courses in hygiene, general pathology, analytical chemistry and sanitary engineering, the candidates are examined in physics, vital statistics and bacteriology.

ELECTRIC LIGHTING has now been in use about two years in the Post Office Central Savings Bank in London, and it has been found that the average amount of absences from illness has been diminished by about two days a year for each person on the staff; a gain to the service of the time of about eight clerks in that department alone, or a saving of something like £266 a year to the Government, besides the material advantage of the better work of the staff resulting from the improved atmospheric condition under which their work is done.

SCHOOL CLOSING in an epidemic of measles in Kings Norton, Rural, England, according to the last annual report of that place, was resorted to "with the most satisfactory results."

A TEMPORARY HOSPITAL in this same place showed excellent work. Of 53 cases of scarlet fever admitted, all were discharged cured.

THE Medical Health Officers of Halifax, and also of Kendal, England, in their annual reports, bear like evidence as to isolation hospitals in their respective towns. Although admissions were numerous all were discharged cured.

SWINE FEVER and typhoid are suspected to be identical, by Dr. Bond, of Rastrick, Eng., as shown in his last annual report.

DR. CREQUY (chief physician East. Railway Comp., Paris), has made an interesting communication to the Academy with regard to the propagation of small-pox at a distance. Small-pox can be transmitted by the atmosphere alone, but not beyond a certain distance. The conclusion was that "no small-pox hospital should be erected within at least one kilometre (nearly 1,100 yards, or ⅝ of a mile) of any dwelling.

AT AN Academié de Medicine meeting in Paris in September, M. Marty reported on the well water employed by a school of female teachers at Saint Brieuc, amongst whom an epidemic of typhoid fever had lately broke out. The water was examined and cultivations were made by M. Vignal, of the College de France, upon gelatine plates, when three kinds of bacillus were detected: 1, The characteristic bacteria of putrefaction; 2, a streptococcus analogous to that usually found in fæcal matters; and 3, Eberth's typhoid bacillus, which was isolated, sown in different media, and fructified in every case.

A SANTIARY CONVENTION, under the auspices of the State Board of Health, with a local committee, will be held in Hastings, Mich., on Monday and Tuesday, Dec. 3rd and 4th, 1888.

M.M. FISCHER and Rabow have lately investigated the manner in which different insects are affected by saccharin, the new substitute for sugar. Ants, flies, and wasps appear indifferent to it. A bee-breeder has observed that saccharin acts as an irritant to bees, and that they become angry when compelled to remain near it.

THE legal formalities attending the amalgamation of the Parkes Museum of Hygiene and the Sanitary Institute, London, Eng., were completed by the combined Councils on October 5th. The new Council formally took over the duties and responsibilities of the two institutions, and elected Sir Douglas Galton as the first Chairman of the new Institute. The Parkes Museum, which was in danger of being closed for want of funds, will now, therefore, be maintained.

SOME highly successful trials are said to have been made in New South Wales of M. Pasteur's method for preventing anthrax among sheep and cattle.

Of the last Report of the New York State Board of Health, the American Lancet says: Considering the means at its disposal, the report is extremely creditable to the Board, but it is very unworthy of the great Empire State.

THE deleterious effects of "town manure" in rural localities is especially referred to in the last annual report of the Medical Health Officer of Hexham, Eng.

CANADIAN CITIES.—The total number of deaths recorded for October in the twenty-eight principal cities and towns which make monthly returns to the Department of Agriculture, in Ottawa, was 1,326 : 267 less than in the previous month. For the corresponding month of last year the record was 1,330; with three less making returns, which, with the increase in population, shows the rate of mortality to have been considerably less for October of this year. For October, 1886, however, only 1,216 deaths were recorded in twenty-four cities and towns, or 110 less than in the same period of this year. The total rate of mortality for October, '88, was about 21 per 1,000 of population.

ENGLISH TOWNS.—In the twenty-eight large English towns, including London, which have an estimated population of 9,398,273 persons, there were registered during the four weeks ending Saturday, October 27th, 22,685 births and 14,773 deaths. The annual average rate of mortality was 20·4 per 1,000 of the population. It was 18·2, 20, 21 and 21·8, respectively, in each of the four weeks. In London it was 16·5, 18 7, 20 and 22·8 in the same periods.

IN OTHER CITIES.—The mortality in October was reported as follows :—New York, 23·1; Brooklyn, 19; Philadelphia, 16·1; Washington, 21·5; Boston, 23·8; Paris, 21·59. In September : Berlin, 22·47; 52 German towns, 22·76; Brussels, 20·94; Hamburg, 20 96; St. Petersburg, 23·7; Venice, 17·54; Alexandria, 39·5; Cairo, 47·4; 15 towns in Lower Egypt, 47·2; 12 towns in Upper Egypt, 40·75; Bombay, 29·83 In August : Calcutta, 20·95; Sydney, 15·2; Melbourne, July, 17 83.

THE THIRD QUARTER in English Towns.—During the three months ending September last, 71,121 births were registered in the twenty-eight large towns; equal to an annual rate of 30·4 per 1,000 of population. In the corresponding periods of the three preceding years the birth-rate in these towns was 32·5, 32·8 and 31·9 per 1,000 respectively. The birth-rate in London last quarter was equal to 29·7 per 1,000, while it averaged 30·9 in the twenty-seven provincial towns, and ranged from 22·3 in Huddersfield, 23·8 in Brighton, and 26·7 in Bradford to 37·1 in Preston, 37·3 in Newcastle-upon-Tyne, and 40·7 in Cardiff.

DEATHS : 39,619 registered in the twenty-eight towns during the third quarter; equal to an annual rate of 16·9 per 1,000, against 18·2. 18·7 and 19·6 in the corresponding periods of three years 1885-86-87. In London the rate of mortality was only 16 2 per 1,000, while in the twenty-seven provincial towns it averaged 17·8. The lowest rates in these provincial towns were 12·7 in Bristol, 13·7 in Nottingham, 13.9 in Brighton and 14·3 in Hull. the highest were 20·2 in Bolton, 20·3 in Leeds, 22·4 in Preston and 23·5 in Manchester. During the quarter 6,346 deaths were referred to the principal zymotic diseases in the twenty-eight towns, equal to an annual rate of 2·71 per 1,000. In the third quarter of the five preceding years the zymotic death-rate in these towns averaged 4·71 per 1,000. The lowest zymotic rates in the twenty-eight towns last quarter were 0·99 in Oldham and 1·13 in Bristol, while they ranged upwards in the other towns to 4·00 in Sheffield, 4.32 in Leicester, 4·43 in Leeds and 5.29 in Preston.

IN ENGLAND AND WALES, during the third quarter of the current year, the deaths of 107,-912 persons were registered, equal to an annual rate of 15·0 per 1,000 of the estimated population. This rate was as much as 3·0 per 1,000 below the mean rate in the corresponding periods of ten years 1878-87, and was considerably lower than that recorded in the third quarter of any year since the commencement of civil registration in 1837. Among the urban population of the country, estimated at more than eighteen and a quarter millions of persons, the rate of mortality during the quarter under notice was equal to 15·7 per 1,000; in the remaining and chiefly rural population, of about ten and a quarter millions, the rate was only 13·6 per 1,000. These urban and rural rates were considerably below their respective averages for the six preceding corresponding quarters. The rate of mortality among infants under one year, and among persons aged between one and sixty, was considerably below the average.

YELLOW FEVER—A SEVERE LESSON. —The New Orleans Med. and Surg. Journal states that yellow fever has existed in the State of Florida for over a year; "exactly how long or to what an extent will perhaps never be known, since the barbarous plan of concealment has been so generally practiced by every county board of health which has been called upon to deal with the disease. It was prevalent in Jacksonville for days, perhaps weeks, before it was officially announced." The hotel proprietors and traders thought that their business would be injured by the publication of the fact that there were a few cases of yellow fever in the State, so they succeeded in concealing the fact until the sporadic cases had been converted into an epidemic which has, of course, ruined Florida as a health resort for the next decade.

SMALL-POX. — Deaths from this disease abroad, by latest reports received as follows from the Sanitarian : During August : Manchester, 3; Sheffield, 1; Hull, 1; Paris, 7; Havre, 1; Nancy, 1; St. Etienne, 2; Amiens, 7; Lyons, 1; Charleroi, 5; Vienna. 3; Pesth, 1; Prague, 33; Trieste, 13; Warsaw, 20; Bucharest, 5; Cairo, 2. During July : Marseilles, 9. During June : Lille, 2; Moscow, 4; Milan, 4; Genoa, 4; Bologna, 4; Madrid, 6; Algiers, 1; Buenos Ayres, 75.

THE Secretary of the Illinois State Board of Health reports, Oct. 26, "There are indications of an approaching small-pox epidemic throughout the country. The disease was reported during the quarter in Canada, Massachusetts, Connecticut, New York, Pennsylvania, Ohio Tennessee, Iowa, Minnesota and California."

IN TORONTO the Medical Officer reports, Nov. 16, the disease entirely stamped out here; showing prompt and efficient action on the part of the local health officials.

IN TWO PLACES in Ontario, only, we believe, at this date, 20 Nov., is the disease known;—at Sarnia and N. Gwillimbury; where it appears the local authorities are making effectual efforts to restrict and stamp out the disease.

FROM MONTREAL, the authorities flatly contradict some sensational reports in American papers as to the health of the city and state that the city is almost entirely free from contagious diseases, that there is less typhoid fever and diphtheria than last year, that there has not been a case of small-pox in the city or vicinity for the last three years; and that should an outbreak of any kind occur, arrangements are complete and organization perfect for combatting and stamping out the same.

LIVERPOOL, ENG., has made good progress of late years in sanitary works and the result is shown in the last report of the medical officer of health of that city. The number of deaths for the past year was 12,005, and the average death-rate 20·0 per 1,000. The deaths for the previous year amounted to 24·3 per 1,000. The deaths the past year were 2,544 below the average for the past ten years, notwithstanding the increase of population, and the death-rate was 6·2 below the average of the same period, and 9·3 less than in the decade 1867-77. The deaths from zymotic diseases mounted to about 2·5 per 1,000, the lowest ever recorded.

FROM TOXTETH PARK, ENG., the Medical Oficer reports an outbreak of scarlet fever, which seemed to have its origin in the milk supply. In two notable instances diphtheria attacked children who had only a very short time before recovered from scarlet fever in the same houses.

BEXHAM'S Medical Officer reports that the importation of the Newcastle town manure, a subject which has engaged his attention for some years, has caused typhoid fever and diphtheritic sore throat in that district.

IN GLASGOW scarlet fever, traceable to milk infection, has assumed, in the west end, the dimensions of an epidemic. The majority of cases at present is about the terraces and crescents of the well-to-do; the families of two medical men being among those attacked.

In Greenock scarlet fever continues to spread, 55 cases being in hospital at the date of the medical officer's last report, October 16th. "It vas stated (Brit. Med. Jour.) that the extension of the disease was due to several parents and guardians failing to report the disease in their families, and permitting convalescent children to mix with the healthy. One member urged that parents could not be expected to report cases when the first thing that followed was the forcible removal of the child to hospital, and that this forcible removal was carried too far.'

AN EPIDEMIC of measles has during the past month caused hundreds of deaths in North Staffordshire. In one small suburb of Hanley no fewer than twenty-four deaths took place in the week ending Nov. 3rd. Adults are attacked almost as freely as children, and with them also the disease is frequently fatal. All Board schools and most of the voluntary and Sunday schools have been closed.

MADRID has long enjoyed the unenviable notoriety of being one of the least salubrious towns in Europe From 1880 to 1887, the average annual rate of mortality was 41.2 per 1000, and for 1887 it was 36.69, rates which, as regards European towns, were only exceeded by those of St. Petersburg and Buda-Pesth. The great prevalence of diphtheria and small-pox there during this last summer, according to the British Medical Journal, whereby the mortality was raised to 45 per 1000, has at last roused the authorities to action and the Central Board of Health have been called upon to investigate and report. The Board urges general reform, in drainage, disinfection, hospital accommodation, etc., etc.

SANITARY PROGRESS IN ALBANY, N. Y.—The Medical Society of Albany, has a standing Committee on hygiene. At the last meeting, Oct. 10th, it reported on plumbing, heating and ventilating schools, street cleaning, etc. "In the department of heating and ventilation we find conspicuous examples of the march of improvement in public schools No 14 and No. 3. The former, at one time a death-trap on account of the unsanitary conditions prevailing in and around it, has been quite remodeled as to its interior, and now takes first place so far as its system of ventilation is concerned. The principle upon which this is based, that of exhausting the foul air from the rooms and building, must ever lie at the bottom of correct ventilation. In taking our retrospect through the year we find at almost every point the lines have been advanced, but that the resting time has not yet come from the fact that our city has suffered the infliction of 1,300 cases of zymotic and preventable diseases. The faithfulness with which physicians have reported cases of contagious and infectious diseases renders it now much easier to obtain statistics. Your Committee has searched the records of every day, from Sept. '87, to Sept. '88, and learn that there have been recorded 151 cases of typhoid fever, 216 cases of scarlet fever, 104 cases of measles, and 269 cases of diphtheria; there have been 250 deaths from diarrhœal diseases, of which 50 per cent. were of children under five years of age; there have been over 300 deaths from consumption." A high rate for a city of the size of Albany.

IMPORTANCE OF ISOLATION.

Probably no other health measure is more useful in preventing sickness and premature deaths than that of carefully isolating all cases of infectious disease, from the first symptoms until all danger of conveying the disease to others has passed away. This measure should receive vastly more attention, both in families, from the household head, and in municipal health boards, than it does. When one thinks seriously for a moment of the danger to the health and life of others, of exposing anyone over whom one has control and who is affected with any one of the sometimes fatal infectious diseases, so that from such exposure another may contract the disease, and then—when it has passed from one's own control—another and another and another, and scores, and, it may be, hundreds and thousands of one's fellow creatures, innocent children and grown up men and women, all contracted and developed from the one case, and many lives be endangered—many deaths following, one cannot but feel that a great and terrible responsibility, indeed a criminal charge, would forever rest upon anyone, whether parent or health officer, who, either through carelessness, indifference or even ignorance, permitted such exposure. No sanitary facts are better established than these two: 1st that every case of infectious disease, simple or malignant, has its starting point directly in the infection from another and previous case of the same disease; and 2nd, that every case of infectious disease is almost constantly giving off germs which may enter into the body of any other individual with which they may come in contact, enter either with the air breathed or with the food or drink consumed, and give rise in such individual to a like disease. Hence every person who is responsible for the control of anyone affected with an infectious disease, which sometimes proves fatal, if he do not use every means known to sanitary science to strictly isolate such case, is guilty of a crime, morally if not legally, against society. Every community therefore should see to it that complete provision is made for strictly isolating every case, but especially the first one, of infectious disease known in the community. Health officers are first responsible. But the people—parents and heads of families—must provide the means—the money for such provision, or they also become responsible. Chiefly what is needed is an isolation hospital, removed a safe distance from any inhabited place, and some sort of safe and comfortable conveyance or ambulance. The hospital need be but an inexpensive structure, and two or more communities could usually join in providing one. In order to secure the best results, it should be so constructed that usually when desired by friends, the mother, sister or other near friend could accompany and remain with any patient admitted. Unless this privilege be provided for parents will often do their utmost, as by concealment, etc., to prevent their children being taken to the hospital, and the objects of it will not be attained. With this privilege, when the infected cannot be properly isolated at home (when home they have) there will not usually, with proper explanations and reasoning, be any difficulty in getting consent and even co-operation from the most prejudiced and least intelligent people. It should then, in all cases, be one of the first provisions made by the health department of every municipality, that for completely isolating the infected sick.

A DANGEROUS, GROWING HABIT.

Coming to a subject more within the field of domestic hygiene and beyond the ken and control of the Health Officer, we would sound a warning note relative to the abuse of morphine and other powerful poisons of a like character. We have good reason to believe that the practice of taking stimulants and hipnotics of this nature, for the temporary pleasurable excitement and feeling of general satisfaction to which they give rise, is being indulged in by a large number of persons, especialy women, indifferent to, or ignorant of, the dreadful consequences which are sure to follow the continued use of such drugs, is more common than is generally known—is indeed becoming so prevalent in this country as to demand earnest effort on the part of all well wishers of society toward checking the growing evil. As the British Medical Journal recently has it: "The more refined vices are not the least dangerous to society, and among these we must count the abuse of morphine, which is becoming a widespread evil...not only in this country but in France and Germany." It is said the Journal states, that the abuse of morphine has in many cases replaced the abuse of

alcohol, especially in refined society, and that such is " especially the case in some districts where rigid teetotal principles have been largely adopted by the inhabitants." The misuse of drugs of this sort has been accentuated by a knowledge, on the part of the public, of the hypodermic method of administration, and the rapid results which follow. Beneficent and powerful as they are when wisely used, or in professional hands, they become a most dangerous when used by patients in secret; the feeling of their necessity grows upon the subjects, reducing them to a state of anæmia and emaciation with moral perversion, from which it is difficult to rescue them. The cases are but few, as the journal says, in which morphine and a hypodermic syringe should be entrusted to the patient for self-administration; " when this must be left to unprofessional hands, the nurse, or some friend, should be the administrator," and for similar reasons the chances of abuse are lessened when prescriptions for mixtures containing morphine are so endorsed as to be used for fourteen days only from date of the prescription; a habit which is usual with most careful physicians.

A MISUNDERSTOOD SAYING.—Some people quote a saying—" Feed a cold and starve a fever," while a few we believe give it the other way—" Starve a cold and feed a fever," which is the safer form to practice. The correct and original rendering is, it appears " If you feed a cold you may have to starve a fever." This implies that the " cold " with which many will be troubled during the next few months, should not be fed very liberally. Rest, in a well ventilated room —in pure air, and abstinence—a light simple diet—are in nine cases in ten the best remedies for a cold.

FRESH AIR FUNDS.—This reminds us again of the first and most constant essential of life—pure air? Fresh air funds are started in cities for the purpose of giving poor children a holiday in the country, or on the water. Most praiseworthy philanthrophy. But why not have a fresh air fund in the family, say, for buying fuel in cold weather for warming abundance of the cold outer air. The great obstacle to ventilation with the " great majority " is the cost of warming the cold air, as it is let into the dwelling. Letting in the outside fresh air freely enough cools the room or rooms too much. Or the same objection is felt to withdrawing the warm air by a free opening in a warmed chimney or stove pipe; which is in fact the best way to ventilate. But we would again urge that it is better to pay a coal bill than a doctor's bill. An incalculable multitude of " colds " with their consequences, often serious, come from rebreathing breathed air in close rooms. Count on a few dollars worth of extra fuel this year and let in more fresh air and note the result.

CHURCH SLEEPING is in many cases but a sort of irresistable yielding to the first stage of asphyxia, from foul air. When one reflects that every human being requires every hour about 3000 cubic feet of pure air in order to supply the needs of the body, it need not appear strange that in any of the churches (for where is there one even moderately ventilated) fairly filled, as most of them are, the air soon becomes too foul for properly supplying the intellectual faculties. Hence stupor, drowsiness and sleep. Foul air is a sort of dirt that will not mingle well with Godliness; and indeed should not be tolerated by professing christians in the House of God.

SCHOOL SLIPPERS constitute one of the essentials of health as well as of comfort. In some of the public schools in England the children are each required to be provided with a pair of slippers. On reaching school the boots or shoes worn outside and often wet are exchanged for the dry slippers; while wet boots have opportunity to dry before being worn again. Aside from the healthfulness and comfort of this practice there is nothing in it at all opposed to the strictest economy, and no parent can plead want of means. It should indeed be a most universal practice in all schools, and not only in a few of the higher schools for girls as at present.

DISINFECTION OF PHYSICIANS CLOTHING is a subject of importance, alike to the public and to the physician himself. Dr. Dickinson, in the Brooklyn Medical Journal, describes a closed wardrobe for this purpose It is made of galvanized iron, 6 feet high, and 18 by 24 inches on the floor. The clothes are hung in the top part, and beneath is provision for burning an ounce or two of sulphur, with alcohol. Four hours may suffice for the process but it is advised to leave the clothes in longer. Steam as stated would probably shrink the clothing, and dry heat in this way would be impracticable by any simple method.

WHEN THE SOURCE or origin of an outbreak of infectious disease is doubtful, it would be well to look to the domestic animals. A case is reported (Pop. Sci. Monthly) in which a skin-disease was transmitted from a cow to a family

of children who used the milk. In the cow the disease took the form of a rash, mostly dry, all over the body. In the children it showed itself first in small blister-like vesicles on the tongue and mucuous membrane of the mouth, followed in three weeks by a limited number of vesicular eruptions on various parts of the body, which formed sores and left dark-red scars. Cases of a like character seem to be becoming common.

THE HANDS too may be feared as a sometimes source of infection. They touch and handle many things, without much attention to the nature of these things, and then the fingers are often put into the mouth. The only safe rule, in fact, as a writer states, is to be as careful of the hands as if one were a dentist—never to put them near the mouth without having first washed them. This would entail some trouble, and yet it might avert evil consequences.

ANOTHER dangerous practice is that of putting pieces of money, from no one knows what filthy pocket or place, into the mouth. Most loathsome local disease may be, and has been said to be, conveyed in this way.

NOTES ON CURRENT LITERATURE.

IN THE CENTURY for November is the first chapter of Mrs. Mary Hartwell Catherwood's serial story, "The Romance of Dollard." Among her previous writings are two nice books for young people, entitled "Rocky Fort" and "Old Caravan Days." She has been greatly interested in Canadian subjects since her visit to Canada four years ago, when she was the guest of an American consul's family and saw the inside of Canadian life. She herself has lately said: "The story of Dollard at first impressed me as incredible. I thought over it long before hunting up records, historical evidence, and contemporary life. Finally I began to make it a story." The historian, Parkham, has written a preface for Mrs. Catherwood's novel, and Mr. Sandham, lately of Canada and now of Boston, has made illustrations for it, and it will run through four numbers of The Century.

IN SCRIBNER for November is a choice paper, with a good portrait, on Matthew Arnold, by Augustine Berrell. The author appears to have studied and known Mr. Arnold well. In a rather brief paper he tries to do justice to this good man. A highly interesting paper is "The every day life of railroad men," well illustrated. "From Gravelotte to Sedan" will interest many. An instructive and useful paper is "Where shall we spend our winters." Altogether the number is quite up to the average of this excellent magazine.

THE ILLUSTRATED LONDON NEWS, American Edition (Potter Building, N. Y.), has given during the past four weeks, besides many instructive and interesting notes, in the "Note Book," by James Payn, in his humerous, pleasing style, on current topics, numerous sketches in the Emin Pasha Relief Expedition in Central Africa, by a companion of Mr. Stanley; and of "The war on the Sekkim Frontier of Thibet"; "Whaling in the Solent"; "Coaling a steamer at Kingston in Jamaica," full page; "Sketches in Morocco, A chain of rebel prisoners," double page; "The Maori Football Team," at Richmond; "With the Vigilance Committee," in Whitechapel; and Sir Charles Warren "Trying the blood hounds"; "A Bulgarian peasant woman," double page; "Sketches in Borneo"; of "The Black Mountain expedition;" of the "Cruise of H. M. S. Ruby" to Beagle Channel; and of scenes during the visit of the Emperor William in Italy; "Black duck shooting in India"; with numerous highly amusing sketches—"That troublesome puppy" (8 sketches) and "Registration of foreigners in Paris"; many portraits of eminent men, and a great many more illustrations, too numerous to mention.

HARPER'S WEEKLY, with many good, independent political articles, chapters in Rider Haggard's story,—"Colonel Quaritch, V. C.' and much instructive reading matter, has given its readers in recent numbers the following: "The Crucifixion," from the painting by Verestchagin, double page; and another of like size, "The winners in the cavalry drill contest" at the recent N.Y. horse show; a full page portrait of the "Rt. Hon. Joseph Chamberlain, M.P.;" another of "Mary Anderson;" and one of "Gen'l. Harrison in his library receiving election despatches;" two pretty scenes, full page, "Her First Muskallonge" and "November;" and an amusing one, "The Latest Arrival at the Hotel;" "Sketches in the Back Country, Australia;" "Duck shooting on the Chesapeake Bay" and of Hutchinson (City) Kansas; besides numerous election scenes and portraits of newly elected governors.

HARPER'S Bazar, the first of ladies weeklies, with a great deal of first class reading on health and social subjects and chapters in Besant's story —"For Faith and Freedom," and numerous fashion plates, weekly, and large, handsome desgins for ladies and household articles, has given five double page illustrations: "Foxhounds in the Red Sea"; "British mounted infantry in action"; "Boar hunting in Morocco"; "A type of Beauty," from a paintiug by Perugini, and "The vintage in Tuscany", very pretty; two very pretty, single page, "The last boarder", and "The Bath," from a picture in the Paris salon, with many other goods things.

IN THE POPULAR SCIENCE MONTHLY for November the leading article is on "The Effects of Protection," by Charles S. Ashley. It is an important contribution to the tariff discussion. The question how long man has lived in America, and what were the surroundings of the primeval inhabitant, is discussed in an illustrated article—"Palæolithic Man in America," by W. J. McGee, in the November "Popular Science Monthly." The author is thoroughly acquainted with the evidence on this subject. "The Prolongation of Human Life" is treated in an article by C. M. Hammond, who has collected a large amount of information which shows what have been the habits, occupations, diet, and physique of over 3,500 persons who have reached advanced age. "Infant Mortality and the Environment" is the subject of an article which J. M. French, M.D., will contribute to the December number; which will contain papers too on "The Psycology of Deception," and "Beliefs About the Soul."

THE COMING CHRISTMAS number of the Montreal Daily Star is, we learn, to be marvellously beautiful, in fact, the most exquisite Christmas paper ever seen on this continent, completely eclipsing all the great English illustrated papers. Already the publishers have expended $20,000 on the work.

THE DAILY GRAPHIC, New York, has started a new feature, "Our Poet's Corner," and, as The Graphic announces, "the department is expressly designed for the profit and celebration of our poetic contributors," in which it is intended to publish all the verses sent that paper. This is, we believe, the first attempt of any metropolitan daily to encourage the development of American poetical genius and will probably "fill a long felt want."

THE PUBLISHERS of Worcester s Dictionaries, J. B. Lippincott Company, of Philadelphia, announce that they have ready an entirely new edition of their Academic Dictionary. While this book is a revision of their well-known Academic Dictionary, so many new features have been introduced that it was found necessary they state to reset the type entire.

The "New Academic" presents as a distinctive new feature the Etymology of Words. In this respect no other work of its class approaches it in fulness and completeness.

A NEW EDITION of the United States Dispensatory is also announced by the same publishers.

THE BRITISH MEDICAL JOURNAL for November 10th gives a very suggestive, timely and useful article on "Soldiers Rations." It favors a continuance of the midday dinner, but contends that more time should be given to it—a full hour at least, and that it be supplemented by a light supper.

THE MONTREAL MEDICAL JOURNAL is the name of the late Canada Medical and Surgical Journal. It has been enlarged in size from 64 to 80 pages, at the same time reducing the subscription to $2 per annum, and making other improvements that place it in the front rank of medical publications.

A GREAT MAGAZINE.—The Century for 1889. The question has often been asked, "to what does The Century owe its great circulation?" The Christian Union once answered this by the statement that "it has been fairly won, not by advertising schemes, but by the excellence which characterizes it in every department." In their announcements for the coming year the publishers state that it has always been their desire to make The Century the one indispensable periodical of its class, so that whatever other publication might be desirable in the family, The Century could not be neglected by those who wish to keep abreast of the times in all matters pertaining to culture. And the unprecedented circulation of the magazine would seem to be the response of the public to this intention.

With the November number The Century begins its thirty-seventh volume. Two great features of the magazine which are to continue throughout the new volume are already well known to the public, the Lincoln history and the papers on "Siberia and the Exile System." The first of these, written by Messrs Nicolay

and Hay, President Lincoln's private secretaries, contains the inside history of the dark days of the war as seen from the White House.

THE SIBERIAN PAPERS,

by George Kennan, are attracting the attention of the civilized world. The Chicago Tribune says that "no other magazine articles printed in the English language just now touch upon a subject which so vitally interests all thoughtful people in Europe and America and Asia." As is already known, copies of The Century entering Russia have these articles torn out by the customs officials on the frontier.

DURING 1889

The Century will publish the most important art feature that has yet found place in its pages. It is the result of four years' work of Mr. Timothy Cole, the leading magazine engraver of the world, in the galleries of Europe, engraving from the originals the greatest pictures by the old masters. A series of papers on Ireland, its customs, landscapes, etc., will appear, and there are to be illustrated articles on Bible scenes, treating especially the subjects of the International Sunday-School Lessons. George W. Cable will write "Strange, True Stories of Louisiana." There will be novelettes and short stories by leading writers, occasional articles on war subjects (supplemental to the famous "War Papers" by General Grant and others, which have been appearing in The Century), etc., etc.

The Century costs four dollars a year, and it is published by The Century Co., of New York, who will send a copy of the full prospectus to any one on request.

FOR CHILDREN OF ALL AGES.—St. Nicholas for 1889. People who have the idea that St. Nicholas Magazine is only for little children should look over the prospectus of that magazine for 1889, and they will discover that it is for children of all ages, "from five to eighty-five," as some one recently said of it. Indeed, while St. Nicholas is designed for girls and boys, it might almost be called a "family magazine," for the grown-up members of a household will find much to interest them in every number.

The editor, Mrs. Mary Mapes Dodge, calls the next volume an "all-round-the-world year," because it is to contain so many illustrated papers about the world in general—not dry geographical papers, but stories and sketches and tales of travel and adventure by land and sea—and all illustrated by the best artists. The features will include a serial story, "How We Made the Farthest North," by Gen. A. W. Greely, the well-known commander of the Greely Expedition; a serial about Canada, by Mrs. Catherwood, who is writing a serial story for The Century this year; "Indians of the Amazon," by Mrs. Frank R. Stockton. There are many papers about Europe, including a Christmas story of life in Norway, by H. H. Boyesen; articles on Holland and the Dutch, by Mrs. Mary Mapes Dodge; "The Queen's Navy," by Lieut. F. Harrison Smith, R. N., with illustrations of many of England's finest war ships; "The Winchester School," illustrated by Joseph Pennell; "English Railway Trains," by Wm. H. Rideing, etc., etc. The French papers include "Ferdinand de Lesseps and his two Ship Canals," and there are several interesting contributions on German, Italian and Russian subjects.

Under "Asia," comes "Boys and Girls in China," by Yan Phou Lee (a recent graduate of Yale); "Home Life in the East," by Mrs. Holman Hunt, and a number of papers about Japan. Under "Africa" there is a sketch of Henry M. Stanley, by Noah Brooks, and several stories about Egypt. Australia is not forgotten, nor the Islands of the sea, and there are even to be stories of under the sea.

Of course the bulk of the contents will relate to American subjects, as usual. Mrs. Burnett, the author of "Little Lord of Fauntleroy," contributes a story of New York called "Little Saint Elizabeth:" there will be papers describing how the government offices are conducted, papers about athletics, amateur photography, etc. The full prospectus will be sent to any one who wishes to see it by the publishers. The Century Co., of New York.

The Graphic recently said of St. Nicholas: "the family without it is only half-blessed."

PUBLISHER'S SPECIALS.

As many of our subscribers were not so well pleased with the JOURNAL being published only quarterly, it will in future be published monthly as formerly.

Remember, too, it will now be discontinued to more of those who are in arrears for more than a year or so. We trust many will kindly "square up" now before Christmas, and oblige.