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THE

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INFECTION AND DISINFECTION.

In the twelfth annual report of the Local Government Board (Great Brit), recently issued, Dr. Burdon Sanderson gives a "memorandum of lines of research concerning infection and disinfection", which is of much interest. Dr. Sanderson is undoubtedly one of the ablest physiologists of the present day, and had the advantage of acquiring much practical professional knowledge as a physician; so that lines of research indicated by him cannot be regarded as theoretical or speculative.

In referring to the memorandum, the Glasgow Sanitary Journal says: "As infection begins at the body of the patient, disinfection, in order that it may be effectual, must also begin there. To leave a patient and all his surroundings untouched, in so far as disinfection is concerned, until the termination of his illness; and then to *commence* the process of disinfecting clothing, bedding, and the house, is a comparatively futile proceeding. But Dr. Sanderson carries us back a step farther, and indicates lines of research regarding disinfection, *within the body of the patient*, at the commencement of illness. At this point, curative and preventive medicine meet and occupy common ground; and there can be no doubt that, in this direction, the important lines of future research lie. From what we already know of the nature and origin of the communicable diseases, we are justified in concluding that curative treatment, like effective disinfection, must be antidotal and destructive; for there can be no cure, and no disinfection, apart from the destruction of the specific organisms which give rise to the disease. We have no doubt that important discoveries are in the future, and that the time will come when it may be possible to treat, with scientific precision, the acute and chronic infective diseases, which can only be treated in a palliative manner at the present day.

"The great difficulty, however, must for long consist in the fact that the commencement of the period of invasion, or of incubation, as it is called, is indefinite. Thus, we cannot state, definitely, that a child suffers from measles, scarlet fever, or any other infective disease, until the characteristic symptom, viz., the rash, appears; so that, before the patient can be put under treatment, of a specific nature, the disease is fully developed. If we could declare, or even hope to be able to declare, that a patient was suffering from a disease at the precise period at which the disease was contracted, then we might be able to administer antidotal or disinfectant remedies at once, and thus arrest the progress of the disease; but this we cannot do, and we cannot indulge the hope that we will ever be able to do so. It would, however, be a matter of great importance if remedies were available which would tend to arrest the progress of an infective disease, even after the disease had fully declared itself by its characteristic symptoms; and discoveries of this kind are certainly within the range of *practical medicine*.

"It will always be easy to bring certain remedies of this class to a thoroughly practical test. Thus, when a case of measles appears among a family of young children, it may be taken for granted that the other members of the family who have not previously suffered from the disease will be infected during the catarrhal stage; so that internal disinfectants administered to the children during the stage of incubation should prove effectual. The same observations apply to such diseases as scarlet fever, hooping-cough, and perhaps diphtheria; but the difficulties will be much greater in the case of enteric fever, the characteristic symptoms of which are much more obscure.

In the introduction to his paper Dr. Sanderson remarked: "said Mr. Simon, in his remarkable paper on 'Filth Diseases and their Prevention," which serves as the introduction to his *Supplementary Report*, published in 1874, "uncleanliness must be reckoned as the deadliest of our present removeable causes of disease." To counteract the hurtful influence of filth is the chief aim of the sanitary administrator. It is therefore desirable that he should possess 'some intelligent appreciation of the ways in which filth becomes destructive.'

Mr. Simon proceeds to state, said Dr. Sanders, as the result of investigations which were in 1874 comparatively recent, that the hurtfulness of filth depends not on its offensiveness but on the existence in it of "morbific ferments," which he identifies with contagia—"matters which are not only not gaseous, but, on the contrary, seem to have their essence, or an inseparable part of it in certain solid elements which the microscope discovers in them: in living organisms, namely, which in their largest sizes are but very minute microscopical objects; and at their least sizes are probably unseen, even with the microscope: organisms which in virtue of their vitality are indefinitely self-multiplying within their respective spheres of operation, and which, therefore, as a contrast with common poisons can develop indefinitely large ulterior effects from first doses which are indefinitely small." He then divides contagia into two classes, namely, (1) those of which "man's body is the sole birthplace,' and which "we see in case after case multiplying their respective types with a successivity as definite and identical as that of the highest orders of animal or vegetable life;' and (2) those which "confess a birthplace exterior to man, a birthplace amid controllable conditions in the physical nature which is around us, a birthplace amid the common putrefactive changes of dead organic matter.'

Both are held to have intimate relations with filth, and it is on this consideration that the force of the emphatic statement from which we started, lies. It is in 'filth' that the innate contagia find the conditions necessary for their continued life outside of the living body—the extraneous ones, not only a soil but a cradle—not that the one more than the other can be stated in any exact sense to be the offspring of filth, but that the morbific ferments of the one class are in relation with 'filth,' from the very moment of their origin; whereas those which originate in diseased tissue are brought into relation with their filth environment only after their escape from their birthplace.

In the later paragraphs of the same paper the author, Mr. Simon, said Dr. Sanders, discusses, with his accustomed perspicuity and force of language, the various means which the sanitary administrator has at his disposal for combatting the particular evils which spring directly or indirectly from the disease producing faculty of filth. It is sufficient for my present purpose to state that, as regards those forms of external uncleanliness which are the subjects of sewerage and scavenging, he attaches little value or

importance to any measures excepting those of destruction and removal (in which last the prevention of accumulation is of course included), and that among the expedients which are ordinarily included under the term disinfection, those only are regarded by him as valuable in which 'the operations are within well defined and narrow limits,' admitting that with well circumscribed matter to work upon, and with chemical action precisely adjusted to its task, we can absolutely kill any given contagium.' 'In proportion as disinfection pretends to work on indefinite spaces it ceases to have practical meaning.' Hence the scope of disinfection seems to be practically limited to the management of individual cases of infectious disease, and the end to be chiefly kept in view in using it, that of acting on the matters discharged by each patient, whether contained in his liquid or solid excreta, or suspended in the air, so as to prevent outward spreading of his infection.

Entirely agreeing with all that has been quoted above, continues Dr. Sanders, as to the futility of general and house disinfection (meaning by the latter those 'vague chemical libations or powderings' which are habitually practised by sanitary inspectors in houses supposed to be infected), I venture to think that the destruction of solid and liquid excreta is not by any means all that can be accomplished by the application of chemical agents for the prevention of infective diseases. The innate no less than the extraneous contagia have a life history which is made up of two states of existence, alternating with or succeeding each other, one in which they vegetate more or less activity in the external environment, the other in which they have their abode in living blood or tissue, and there exercise their hurtful function. The problem of disinfection relates as closely to the latter as to the former of these states, hence the difficulties which render it so difficult to deal in any effectual way with contagia when out of relation with the living organism ought not to discourage us from attacking them either during their development within the organism or as they are entering or leaving it. After we have eliminated from our problem the futilities of house, street, and other kinds of external disinfection, there are still several important objects to be aimed at in addition to the destruction of the contagia contained in the solid and liquid discharges from the sick man's body. As regards excreta, the particulate contagia which, whether derived from respiration or not, escape by the air, are at least as potent for evil as those which are thrown off by the bowels or kidneys, although the evidence we as yet possess in respect of particular infectious diseases that such contagious particles are discharged into the atmosphere is scanty. But even the little knowledge we possess admits of sufficiently important practical application to encourage us to seek to extend it. As regards pulmonary tuberculosis the striking facts which have been lately observed as to the tuberculisation of animals in rooms inhabited by consumptive persons, have suggested the possibility of danger arising from the collection of such persons in numbers under one roof in consumptive hospitals; while, as regards small-pox, the experience of Mr. Power on the prevalence of that disease in the neighbourhood of the Fulham Asylum has given occasion for seriously considering whether wards for the reception of variolous patients could not be so constructed as to insure the destruction of all living particles discharged from the bodies of the sick into the atmosphere.

The question, How to act effectually on contagia as they are entering the body so as to render them harmless, differs from the preceding in this respect, that, with the exception of the application of heat, the means used must not be destructive, but

exclusively of such a nature that they can, without prejudice to the human organism, be mixed with the life-maintaining tide of food and air. This consideration leads us at once, and without any difficulty, to a practical view of the aims we ought to place before us in this branch of the art of disinfection, and renders it possible to state very definitely in what direction present knowledge can be applied, and how to seek for an extension of it. It is clearly possible to place before oneself two purposes in the application of disinfectants in the way above indicated. We may either have in view a direct action of the disinfectant on the contagia contained in the material with which it is mixed, of such a nature as to render them innocuous, or the arrest of inhibition of their morbific action within the body. The occasions which justify the first of these motives are of rare and exceptional occurrence, for, in general, common sense would prescribe not the disinfection, but the avoidance of food, air, or water known to contain contagium In certain circumstances, however (as was so lamentably the case in the recent campaign in Egypt), the consumption of contaminated water may be unavoidable, so that a knowledge of a means of rendering such water harmless might be of inestimable value. Similarly in the much more frequently occurring case in which persons in attendance on the sick are exposed to the risk of infection through the air, the discovery of an agent capable of counteracting the infective action of such air would be of incalculable service to mankind. Such a discovery is, however, scarcely likely to be made until better knowledge is attained as to the arrest and inhibition of contagious action within the body.

At present our knowledge of the colytic action of chemical agents within the organism is very scanty. There is, so far as I know, no instance in which the contagium of any disease communicable from person to person, or from animal to animal can, after its introduction into the orgonism, be controlled or inhibited in its morbific action by introducing along with it an antagonistic drug. We can oppose the development of malarious fever by the exhibition of quinine, or that of rheumatic fever by administering salicylic acid, but we cannot prevent a person who has taken the variolous poison or that of rabies, from getting small-pox or hydrophobia. The knowledge which as yet exists on the action of contagia, and particularly of what constitute the specific differences between them, is as yet so incomplete that it is impossible to say whether the discovery of specific co'ytics is likely to be realised or not. Hitherto no attempt has been made to seek for such agents, but now the time seems to have arrived for initiating researches in this direction.

AROMATICS—PERFUMES.

Dr. Sanders concluding remarks bear upon the article on peroxide of hydrogen and perfumes as disenfectants, in the may number of this *Journal* and are exceedingly interesting; indicating that substances akin to these may normally come into existance in the human organism. He observes, there are clearly two ways in which we might hope to attain such knowledge. We might hope to arrive at it by fortunate experience, as men are supposed to have learnt the virtues of Jesuits' bark as an antidote to malaria, or by the ordinary method of investigations of nature; that which consists in first defining the possible relationships of the unknown to the known, and then determining the value and reality of these relationships, discriminating between the true and the false, between the essential and the accidental by experiment.

In the successive evolution of contagia it can scarcely, I think, be doubted that the septic infection which is dependent

on conditions which are relatively so simple must have proceeded the rest in time, in other words, that all contagious microphytes are related by descent to the "common microphyte" of sepsis, and consequently that whatever properties belong to the parent are likely to be represented, more or less modified, in those of the successors. If for exemple, it can be certainly stated that the instrument or agent by which the septic microphyte produces its toxical effect is a ferment in the chemical sense, we are justified in assuming that the morbific action of the microphyte of small-pox is of the same nature; and if it can be shown that the septic fermentation is necessarily brought to an end by the development of an antagonistic chemical action, there is at least ground for the surmise that the mechanism by which the variolous fermentation brings itself to an end may be of the same nature, and and consequently within reach of investigation.

Recent researches relating to the chemical characters and products of the septic decomposition of proteids have shown that the development of microphytes in an albuminous fluid undergoing sepsis at a favourable temperature is a terminable process, reaching its greatest activity a few days after the impregnation of the liquid with septic ferment; and that it is during this period of active vegetation that the liquid acquires its greatest toxical activity. After the culmination of the process the organisms cease to multiply and eventually die. As this takes place long before the whole of the proteid material is used up it cannot be attributed to want of nutriment, and there is good reason for regarding it as the result of the coming into existence of chemical bodies in the liquid, as the result of the breaking up of the proteid molecule, which possess the power of arresting the growth of ferment organisms. The bodies in question belong to the aromatic group, and are represented at an early stage in the septic process by acids of the acetic series in which an atom of hydrogen is replaced (as in phenyl-acetic and phenyl propionic acids) by an aromatic group. The latter of these has been found by experiment to be destructive of the vitality of microphytes in a degree which is 20 times greater than that in which carbolic acid acts, and is such as to bring it into equality in this respect with the most powerful antiseptics known. Under conditions of sepsis slightly different, other analogous series of aromatic compounds are produced which have not yet been subjected to physiological investigation.

Of late years physiologists have become familiar with the fact that chemical bodies belonging to the aromatic group, some of which are specifically identical with the aromatic products of sepsis, take part in the normal exchange of material of the living human or animal body. Their appearance in the urine in unnaturally large amount, when, as in cases of ileus, septic products are absorbed from the accumulated intestinal contents, indicates their relation to sepsis, and affords ground for the inference that they normaliy come into existence as products of a similar disintegration of the proteid molecule. That this is so is confirmed by the observation that the proteid disintegration of tissue which takes place in the animal body, in poisoning by phosphorus, occasions a prevalence of aromatic bodies, as indicated by the discharge of phenyl compounds by the kidneys, similar to that determined by the absorption of septic products.

The property which so many of the aromatic bodies possess of arresting the vitality of ferment organisms must for the present be regarded as purely organoleptic, for we can only define it by reference to the particular effects which the bodies in question produce on particular kinds of living protoplasm. Their

production as fruits of the operation of the very life which, from the moment of their constitution they tend to annihilate, may be satisfactorily explained on the hypothesis that an aromatic remainder takes part in the constitution of the proteid molecule, and consequently that aromatic bodies are to be looked for among the products of its disintegration. But in biology we do not content ourselves with the discovery of the casual relation between a fact and its antecedents, but look for a complete solidarity between all the phenomena of a living organism, whether successive or collateral, a relation of such a nature as to strengthen its capacity of continued well being, and to furnish it with the means of struggling against hostile agencies.

All questions relating to the forms and even to the mechanical functions of animal and plant life, are regarded by naturalists habitually and without hesitation from this point of view, but its application to chemico-vital processes is much less familiar. There is, however, no intelligible reason why we should not take the same view of these that we do of the others. There is no reason why we should not admit that the existence in the animal body of a particular group of chemical compounds, endowed with a property which is clearly useful, as well as the metabolic process of which these are the products, is one of those 'all things' which no less the form and the structure of the body and its parts work ogether for the good of the whole.

ANOTHER SOURCE OF THE SPREAD of contagion has been referred to in the *British Medical Journal*. It is new clothing, much of which is made up at the homes of the workers. If in these homes there happen to be cases of contagious disease, the germs may be readily conveyed in the clothing to the wearers of the same. Care and enquiry on the part of manufacturers of Clothing is very essention, in order to prevent this.

THE ONTARIO PROVINCIAL BOARD OF HEALTH—SECOND ANNUAL REPORT—MALARIA.

The second annual report of the provincial board of health of Ontario is a large volume, consisting of nearly 500 pages, and containing much that is both interesting and practically instructive. In the report, proper, and the appendices we find the reports of committees of the board, and of the secretary, on the weekly disease reports in Ontario, with a compilation and study of these, on investigations into the causes of, and remedies for various outbreaks of disease, on the collection and dissemination of sanitary information, on various public nuisances, school hygiene, local health organisations, directions for preventing the spread of cholera, and a report of the London Sanitary convention, with a number of others, besides papers and "studies" or "compilations" on various subjects.

In view of the effects of "malaria" on the public health, its great prevalence and the increased interest recently manifested in this cause of disease, one of the most interesting and instructive parts of the volume under consideration is that on "Malaria in the Grand River District." We will briefly notice this now, and we purpose at future times to refer at greater length to other parts of the report.

After briefly referring to the physical characteristics of the Grand River district and the history of its early settlement, the report reads. "Turning now to the past history of malaria along the river, I have found it practically impossible to get any definite information extending back much beyond forty years, concerning the prevalence or non-prevalence of the disease. It is only since the dams, already spoken of, were built that history speaks out very decidedly concerning the disease, and then it is in such language as gives us some idea of what malaria has ever been along the valley of the Grand. Dr. G. A. McCallum, of Dunnville, who

has practised medicine there for sixteen years, said: no doubt, in former years this locality was a veritable Eden, *à la Dickens*, when it is said by the old inhabitants, that there were hardly enough well persons to nurse the sick. Judge Stevenson, of Cayuga, a worthy old gentleman, who had lived for many years on the river, spoke most feelingly on the subject. He said that when he first went up the river (about the year 1846) its malarial condition was something beyond conception. Everybody had the ague, and at times, it was difficult to find enough well persons to perform the ordinary work. Similar testimony was given by Dr. J. Baxter, M.P.P., of Cayuga, who has lived on the river some twenty six years. In conversation with an old gentleman—Charles Smith, Esq., of Newport, near Brantford, the point on the river where the heavy clays largely disappear —I was informed that when over forty years ago he first settled on the river, it was fordable opposite his residence, and that an ox team could be driven across. Then the river seldom overflowed its banks, and malaria was absent; but he said that when the Caledonia dams were built, whereby the water was held back, deepening the riverway a very considerable number of feet and causing the banks to often overflow in the wet seasons, ague became very prevalent.

From this unanimous testimony we can draw only one inference, and that is, that the appearance of malaria of so epidemic a character along the river immediately subsequent to the building of the dams, establishes between them close relations of effect and cause, (at least the existing cause.) The history of the disease since that time has been interesting. Concerning it Dr. G. A. McCallum again speaks very definitely: 'The fever there (*i. e.*, in the earlier history of Dunnville), assumed quite a malignant type — real typho-malarial. Now, however, thanks to a system of drainage, not only is the character of the fever changed to a mild intermittent, but the number of cases is not one-fiftieth of what they were.'

Dr. F. King, of Port Colborne, testified to a marked decrease of late years as the soil has dried out and its excessive organic matter been lessened by cultivation. Similar testimony was given by Dr. Baxter, of Cayuga, Dr. Dee, of Tuscarora, and Dr. Marquis, of Mohawk.

Evidently, the writer of the report, Dr. Bryce, believes that malarial fevers are caused directly by the bacillus malariæ, a microscopic vegetable organism of the lowest type, which grows and multiplies in the human body. This belief is becoming universal; it is that long favored by this JOURNAL, and the evidence in support of it is very conclusive: "Now, assuming that the probabilities as to the cause of malaria are in favour of that which will best fulfil the requirements of the case, we must suppose that malarial regions develop certain *microbes* or *bacilli*, which, when introduced into the human system, produce intermittent fever. It would hardly seem to come within the province of this paper, to discuss the various other theories which we have stated, simply because none of them, in any degree, seem satisfactory explanations of the causation, although they may serve in part to aid in explaining how the supposed specific *bacilli* produce their effects. It must be evident to all, that on the assumption of the zymotic origin of malaria there must still exist along the Grand River valley conditions which favour the development of the specific germs of the disease.

It will be evident that the conditions present in every case, where the disease prevails, are those which cryptogamic vegetation, or that of lower plant life, finds favourable for growth and development... As there is no district, even deserts of sand, with a total absence of organic matter, it might be inferred that the discussion of the question of how to prevent malaria is at an end, since it ought to be ubiquitous. But it is not, and we have to attempt to patiently enquire into the reasons why there is in some districts an immunity from the disease. The first and almost self-evident truth is that, the number of germs of the disease must vary (*a*) in different situations and (*b*) under different conditions. Let us briefly discuss this statement. Other things being equal the, soil best

suited to their growth, as to that of all other vegetation, will produce them in the greatest abundance. This is not only true theoretically, but is capable of being proved. For instance, Pasteur has shown by sowing sterilized solutions with the dust of the air, that the air of the plains is more charged with spores than is the air of high mountains. But this method would only enable the number and character of such as are capable of multiplying in the culture solution to be known: hence, as Miquel says, 'the only accurate way of gaining an estimate is by counting them under the microscope; for, although by the latter method we run the risk of counting as germs, unfruitful spores and those killed by age and dying out, one does well not to forget that a large number of the seeds of lichens, of algæ and mushrooms, though being perfectly alive, never multiply in *wort*, the juice of fruits and the broths where some moulds of the *Mucedines* and *Mucorines* disport and multiply themselves.' Following is Miquel's table on "Les Organismes Vivants de l'Atmosphère."

	Spores of Cryptogamia.			Mineral Particles.
	Young.	Old.	Pollen.	
1. In Summer.				
" Wet weather.	Numerous	Rare.	Frequent.	Rare.
" Dry "	Rare,	Frequent,	Frequent.	Abundant.
2. In Winter.				
" Wet weather.	Rare	Rare.	None.	Rare.
" Dry "	None.	Frequent.	Very Rare,	Abundant.
3. In Hospitals and houses.	Very Rare.	Frequent.	Very Rare.	Very abundant
4. In Sewers.	Numerous.	Rare.	None.	Rare and homogeneous.

"We thus see that there are definite laws regulating the number of spores and their vitality. In the external air in summer we have abundance of pollen and of spores, new or old, varying according to the degree of dampness or dryness of the atmosphere; while, as opposed to this, the pollen and new spores are rare in houses and hospitals, although old spores may be abundant. Again, in the sewers, new spores are numerous while the old are rare, and pollen is wholly absent. The remarks here made concerning the spores of Cryptogamia must, as far as we can judge from the nature of this whole class of plants, and from analogy, apply equally to those of Bacilus Malariæ. The next point is that their number must vary with changing conditions.

"How delicate is the balance which regulates the amount of bacteria that are carried into the air is seen in the facts which repeat themselves again and again in Miquel's tables. A moist season followed by a dry one of sufficient extent to allow of the drying out of such surfaces, always shows a proportionate increase in the bacteria of the air; but let the drought continue long enough to cause a drying out of the germs, by the absorption of their water by the air, and their amount proportionately decreases. It will readily be seen, however, that such surfaces as those along streams dammed back will always have a new germ producing surface, since no matter how long the drought continues there will always be the wholly dried surfaces and then every degree down to the surface covered with water. Hence it is that, on the assumption of the zymotic origin, of malaria, there will always be a never failing hatching place for its germs along such streams; and there, under such circumstances we would have an alteration of the effective germ-producing period noted by him as increasing after rain, but soon lowering with continued dry weather—and which his statistics shew to be the rule at Montsouris. Under such circumstances the lateral distribution of microbes from their source of origin will depend, (*a*) on the amount of their production: (*b*) on the rapidity with which they are dried out in a fervid summer atmosphere; and (*c*) on the breadth and

height of the valley and the number of obstacles which mechanically oppose their lateral spread.

The report then deals with the waters of the Grand and the soils of its valley, and to remarks of Miquel on soils in general, and to drainage, to which we shall probably refer next month.

THE USE OF TOBACCO.

As the readers of this JOURNAL know, a great deal has been written in it, and in strong terms, against the use of tobacco. Not only is the poison harmful in itself but we have produced evidence, and it is a very general belief, that the use of tobacco creates in many people a desire for alcoholic spirits, and in this way it is a cause of intemperence. The views of the *New York Times*, for July, as given below, fully accord with those to which we have given expression on more than one occasion.

If me were asked, says the Times, what two vices were the most to be guarded against, among our American people, for their effects upon mind and body, and their war upon the finer elements of social life, we should unhesitatingly say, tobacco and alcohol. We should place tobacco first, because its use and abuse are almost universal, and nowhere in the world more so than in so-called good society among our American people. The tobacco smoker and tobacco chewer seems to be perfectly oblivious to the rights of any one, or the comfort of any one but himself, if he can enjoy, no matter the time or place, his chew or smoke. So much of a slave is he to his vice, which becomes not only a vice, but a vulgar and detestable one from abuse, warring against every principle of good breeding, that he puffs his smoke not only in the face of the public on the street, but in that of the lady he is walking with— wife, mother, sister, sweetheart or friend. A car has to be appropriated to his sole use on almost every train; cards placed upon the deck of steamboats requesting him not to smoke in such and such places, to which however, he generally pays no attention; and in the halls and elevators of hotels *gentlemen* are requested not to smoke or spit. Men who pride themselves upon being gentlemen, who would be offended if the name were denied them, know so little about the meaning of the word, that they can only be held to even a partial observance of its spirit by the strong hand of power.

"This vice, it seems to us, is becoming more and more a national vice, stamping with its filthy imprint our national character, demoralizing our young men, shattering their nervous system and making them old in their youth. The evidence of almost every physician in the land, if he is a careful observer and speaks out his convictions, is that a large amount of the nervous troubles among men, the palpitation of the heart, the gastric derangements, the throat and chest affections, are produced either directly or indirectly, by the drug action of tobacco. Need we wonder at this? Is it not a wonder rather that any one can stand the constant action of a drug so potent, so powerful as nicotine? However valuable the drug may be as a medicine, there is none so liable to abuse and none which should be used with more caution.

"We know of no more lamentable confession of mental and physical weakness than that of the young man who insists upon the need of wine or tobacco to keep up his strenght, to quiet his nervous system, and to enable him to perform his tasks."

HOUSE DECORATION.

Martha Howe Davidson writes very sensibly on this subject, as follows: Much of the so-called decorative work which is in such request at present is undeniably tawdry and puerile. In striving for mere prettiness amateurs often attain nothing but confused or petty results. But that these results are the stepping-stones to something better and truer in the future no one can doubt. The desire to add color and ornament to the bare necessities of daily living is not

easily satisfied, and each achievement brings with it new wants. Many a highly-prized ornament which to-day crowds the useful and the genuine out of place in the modern parlor, will soon be consigned to the oblivion of the attic or store-room, to make way for something simple and reasonable. Oddity is much oftener fantastic than artistic, and simplicity is always to be preferred to meaningless confusion. A parlor that suggests a bric-a-brac shop or a museum can never be restful or homelike. Two laddess are recommended to be placed together at the top, the poles and rungs covered with plush and draped at the top with plush curtains. Plush-covered shelves are to be supported on some of the rungs, and pictures are to be attached to others, while a bucket of flowers may be hung between the ladders. It is hard to imagine a more martistic object or one which more clearly violates William Morris' goldenrule.— "Have nothing in your house which you do not know to be useful and believe to be beautiful is a good one." Many of these attempts at decoration are more expensive than really genuine and beautiful things. Art is not necessarily costly, and a little thought and care in selection will often accomplish more than money. There is no reason why the simplest homes should not have something of the grace of art, for the means of attaining it in some degree are within the humblest reach, and the temptations of the rich to lavishness and pretence are wanting. Charles G. Leland truly says: "There never was a real art in the world that did not spring from the people, that was not fully shared in by the people, and that did not belong to the people."

The effort made to popularize overstuffed furniture will not succeed in making it more than a passing whim of fashion. There is neither fitness nor beauty in concealing the woodwork of a broad heavy sofa, or a large chair, which, it is evident, must have a strong and substantial framework, and the only result attained is a puffy and dropsical effect which is both inartistic and insincere. With such a variety of beautiful and serviceable woods at his command, the furniture maker has no occasion or excuse for resorting to such tricks.

HYGIENE OF SUMMER TRAVEL.

The Philadelphia Medical Times has a very good article on this subject from which quotations are given below. Many readers of this journal may yet this season take a trip to Europe or elswhere and be benefitted by the hints given.

We would here state, however, in reference to the Medicines advised to be taken, while we fully agree with the suggestions, we would urge caution in taking them. In constipation, an injection of tepid water would be much safer than a cathartic, and a syringe might be carried for the purpose. In diarrhœa, minute quantities of brandy with a few drops (3 to 5) of tincture of opium, frequently repeated, will often give entire relief, and in the absence of the family physician, might be tried. Abstinance for a day or two, with a little toast and a cup of beef broth or milk, will usually be the best remedies in disturbed digestive organs.

If all the disagreable possibilities of travel were taken into consideration says the Medical Times,—the disasters by rail, the wrecks by sea, the unwholesome and badly-prepared food, the strange beds of unknown history, the contagion in waiting-rooms, the malaria acquired by night travel through swamps, the infection lurking in carriages, the lightning-stroke, and the many moving accidents by flood and field,—it is probable that the propensity to journey from home would be measurably checked, and that many would endeavor to put up with the ills they have, rather than fly to others that they know not of. With the hopefulness of the race, however, these disadvantages are almost universally ignored, and the risks taken deliberately, in view of the many advatages to health arising out of a change of air and scene and the escape from the ordinary routine of existence.

Apart from these ordinary accidents, which, although relatively rare, should

be considered as part of the risk of travel, there are individual possibilities which should not be omitted from consideration in preparing for a summer tour. A certain proportion of those who leave home will be taken sick *en route*, from causes which were latent on starting, such as typhoid fever, or which were progressing unobserved, such as apoplexy uræmia, or diabetic coma.

The possibility of sudden unconsciousness during a journey makes it advisable to have the name and address of the friends of the individual, not only in the pocket-book, for this might be stolen, but elsewhere upon the person, so that they might be promptly notified in such an emergency.

The *British Medical Journal*, some years ago, announced to the travelling public that safety from the typhoid-contaminated water of the wells of Europe consisted only in the exclusive use of water obtained from a reliable source, such as the Apollinaris. It must not be forgotten that ice may be contaminated as well as water. It would be best to restrict the drink to water which has been boiled, and cooled by being placed in bottles *on* the ice, not by putting pieces of ice *in* it. Cold tea answers a similar purpose.

In case of sickness in a strange hotel it is better to obtain the opinion of a good druggist as to the physician to select, than to follow the (too often interested) advice of the hotel-keeper or clerk. In Europe the combination of the hotel-keeper and the physician often amounts to little better than a conspiracy to defraud the sick stranger. It is better, very often, for the traveller to apply for treatment at a large hospital than to be subject to extortion and ill treatment in a hotel, where usually there are scanty conveniences for treating the sick.

A small stock of medicines will prove useful in preventing illness: seidlitz powders, cathartic pills, brandy, cholera-mixture, paregoric, aromatic spirit of ammonia, soda-mint, ginger, a few opium suppositories, quinine pills, and prepared mustard-leaves, will often be of inestimable value in emergencies. If, with these at hand, due regard be paid to regularity of habits, maintaining, as nearly as possible, the hours for eating and sleeping to which one has been accustomed at home, and due attention to nature's needs, avoiding too much fatigue, and paying proper attention to clothing, the traveller may indulge the promptings of the Berserker spirit that lingers in his blood and may wander far in quest of health and pleasure, to return, when the summer solstice is past, with renewed vigor to resume his daily tasks, often to find them lightened, since to his increased physical strenght they are less burbensome."

PASTEUR AND RABIES—By invitation of M. Pasteur, a commission has been appointed to test the validity of his claims, about which there has been some misunderstanding owing to the zeal of reporters for the daily papers (Phil. Med. Times). In a recent communication, Pasteur has denied the sensational statements of the public press that he had discovered and isolated the *materies morbi* of rabies, and that he had promised to grant immunity to the human subject from natural rabies by preventive inoculation. His claim was simply that, from the results of many experiments, he had found that the brain of a mad dog preeminently contains the morbid poison, and that, inoculated into apes, the poison becomes successively less and less active; while on the contrary, if rabbits be used instead of apes, the poison becomes more virulent; by combining the two methods he obtained virus of different degrees of strenght. He claimed, further, that the injection of the modified virus under the skin of a dog will not give him rabies, but will render him proof against subsequent inoculation with virulent matter or the bite of a mad animal. The Minister of Public Instruction of Paris has been invited to superintend the following experiment: M. Pasteur will by previous inoculation render twenty dogs insusceptible to rabies, and these, with twenty others unprotected, will then be bitten by mad dogs; and it is confidently predicted that the first twenty will enjoy entire immunity, while the second series will all die of rabies.

LET TRUE TEMPERANCE BE TRIED.—Insurance tables show that a man who abstains from liquor, has at 20 years of age, a chance of living 44 2 years; at 30 36.5 years; at 40, 28.8 years. An intemperate man's chance at 20 is 15.6 years; at 30, 13.8; at 40, 11.6. Now how would it be with a truly temperate man, one who confined himself to a very moderate allowance of good wine daily for example. We believe other things being equal, he would outlive the total abstainer.

SANITARY LESSONS for young people would be such a relief from fractions, history, stupid old maps and grammar.

AS AN AID to overcome the desire for alcohol, a half ounce of ground quassia steeped in a pint of vinegar, and taking a teaspoonful in a little water when the thurst for spirits comes on, is said to be very useful.

THE CUCUMBER.—Dr. Abernethy's receipt for its use was to peel the cucumber, slice it, put on pepper and vinegar, and "then throw it out of the window." But it appears that vast quantities of this vegetable are consumed in Egypt, Asia, Russia and Germany. It is said, you never see a Russian peasant at dinner but you see a piece of black bread and a cucumber. It is mentioned in scripture; and the want of it was one of the grievances com lained of to Moses by the Israelites in the wilderness.

BARE FEET.—The London *Lancet* in referring to provincial schools, recommends that the children go barefoot, as in Scotland and Ireland. It is better that the feet be bare than covered with wet stockings and boots. "Habit and fashion alone enjoin the wearing of shoes, and those who go without suffer no hardship but enjoy an immunity from chilblains, corns and cramped toes."

RUNNING TO DEATH FOR TRAINS.—A complete record would furnish many deaths caused by running to catch trains. An exchange gives the following truths. Even to one whose heart is sound, running, when not accustomed to such hurried movement, is certainly not beneficial to the delicate cords and valves of the heart; and should this organ be diseased, it must prove very injurious. We all know that violent and tumultuous action is to be avoided when the heart is weak, and we also know that running is not the way to avoid it. In our own experience, says the writer, we know several instances where men who had previously supposed themselves to be *sound* have run for trains, and getting aboard have fallen exhausted into seats from which they never arose. Better miss a train than run the risk of running into the jaws of death; for this strain on the heart cannot prove beneficial to one that is sound, while it is likely to prove disastrous to one that is weak.

EVERGREENS.—Mr. W. D. Boynton communicates to the *American Garden* an article on planting evergreens. No trees are more beautiful and healthful than groups of balsams, pines, and firs, and they are among the most likely to thrive after transplanting. As to the season for transplainting, says Mr. Boynton, either fall or spring is good. The *when* is not so important as the *how*. I lean a little toward the spring planting, however. My first and main precaution is to secure the body of mould immediately around the tree that contains most of the feeding roots in a tree of small growth. I have this lifted out carefully with the tree in the center, as little disturbed as possible, and coarse sacking wrapt about the whole, drawing it up around the trunk and tying firmly. They should be set out at once, watered, and staked. Quite large trees are sometimes very successfully transplanted in winter, the frost retaining a large quantity of earth about the roots.

THE MEDICAL ACADEMY of Paris calculates that there are at the present time 180,0 0 doctors scattered over the world. Of these, 65,000 are in the United States, 26,000 in France. 32,000 Germany and Austria, 35,000 in Great Bri ain and the Colonie-, 10,000 in Italy, and 5,000 in Spain. Putting aside pamphlets and memoirs innumerable, it is estimated that 12·,000 works have been published on medical subject. Of the writers 2,800 are American, 2,600 French, 2,300 German and Austrian, and 2,100 English.

MEAT INSPECTION IN GERMANY is very minute. All inspectors are required to provide themselves with microscopes, and the instruments must be officially proved and declared fit for use. The proprietor of every slaughtered hog must pay 25 cents for inspection and the issuing of a certificate. For the inspection, a piece of the meat is cut from each of the following parts: the muscles of the diaphragm; short ribs; larynx; root of the Tongue; jaw; eye; the thigh; shoulder-blade; upper part of the neck; and back. Statistics show that about ½ of 1 per cent of all German hogs are trichinous, while of the imported hogs about 4 per cent are infected. Warnings have been issued against the consumption of raw pork.

PURIFICATION OF WATER BY MOTION.—The water of the river Neva is very free from bacteria, having only about 300 germs in a cubic centimeter. In the canals of St. Petersburg, on the contrary, their number reach 110,000 in a cubic centimeter, even *during good* weather Dr. Pehl explains this by the rapidity of the motion of the water, and he has made direct experiments in order to ascertain that. When water was brought into rapid motion for an hour, by means of the centrifugal machine, the number of developing germs was reduced by 90 per cent. Further experiments will show if this destruction of germs is due to the motion of the mass of water, or to molecular motion.

Leading Articles.

ON THE REPORTING OF DISEASES.

It had been hoped by many that a system for obtaining reports of prevailing diseases from definite localities in all parts of the Dominion would have been put in operation before this. Such a system is much needed in the interests of the public health. There is now seemingly entire unanimity in the profession as to the necessity for it. While of course mortuary statistics are regarded as indispensable, it is now considered that reports of the prevailing, and especially of the infectious diseases, in fixed localities, will be of more practical value than even the mortuary returns. This was placed strongly before Sir John Macdonald during the last session of the House, especially by Dr. Church, of Ottawa, during the interview accorded by Sir John to the special committee appointed to bring before him the desirability of having a Dominion Health Bureau established.

From time to time we are in receipt of "crop bulletins," especially from Manitoba, giving reports of the condition of the crops throughout the country. Is it of any greater importance to have frequent reports relating to the crops than it is to have reports relating to the condition of the health of the people? Certainly, to say the least, the latter would prove of as much practical value as the former. And the cost to the country of the disease reports would be comparatively very little.

Two years ago, a plan for obtaining fortnightly reports of prevailing diseases was submitted by Dr. Playter, editor of this JOURNAL, which was endorsed at the time by the profession in Ontario; in the early part of this year, the sanitary association of the Province of Quebec recommended in a memorial to the Department of Agriculture that the plan shoul! be carried out, but, in accordance with a previous alteration, that the

reports be made monthly instead of fortnightly, as a commencement in the work.

The knowledge which the working of such a plan would give would be of immense value. It would then be known where any epidemics were prevailing, in any electoral district throughout the Dominion; and the extent, severity and duration of these and their course from one locality to another. It would also be known what districts were free from epidemics, and all this knowledge would be a strong inducement for the people every where to endeavor to keep free from such by using precautionary and preventive measures. The publication of monthly reports of the collected information, condensed and tabulated, along with sanitary information, would create a general interest in public health proceedings hitherto unknown. The returns from the reporters in electoral districts, though not giving the exact number of cases in any epidemic, would be otherwise definite, especially as regards locality.

It is a great mistake to try to suppress and prevent the spread of knowledge of the fact of an epidemic prevailing in a locality. The temporary check to 'business'—the slight interference with the 'trade' of the small dealers and tavern-keepers, would be a very insignificant matter compared with the great and serious losses through sickness and deaths which a knowledge of the fact of the prevailing epidemic might aid in preventing. And few indeed are there, we believe, who, on giving this question a little serious thought, would not be in favor of the diffusion of information relating to the prevalency of an epidemic in any locality or neighborhood. The question of dollars and cents should not be so far allowed to jeopardise the health and life of the people as to prevent the diffusion of such information.

Besides the interesting and practically useful information which disease reports as above indicated would give, they would afford most valuable accumulative knowledge which in time would show the course of epidemics, even of the lighter sort—of measles, scarlet fever and whooping cough, for example, what relation they may have to prevailing winds, or other meteorological conditions, or if there is any tendency in them to return at certain periods or to be as a rule more severe and extensive in certain localities or communities than in others, and much other useful information which might be mentioned. Besides, such knowledge would doubtless develop facts in connection with epidemics which have not yet been thought of.

Let all therefore who feel an interest in the progress of public health work endeavor to promote this movement for a system of disease reports from all parts of the Dominion.

HEALTH MATTERS.

We are pleased to see that the remarks made in our last issue are being well received by the press of the province. It augurs well for the future that the city of Toronto, as a centre of wealth, trade and intellect has taken the initiative in appointing a local board of health who are now fully organized. As a sketch of their work may be of use to other municipalities we may state briefly that they have determined to use the existing organizations of the city. The police and fire halls are used as stations where complaints are to be lodged, which are daily to be sent to the city hall to be attended to by the health commissioner or medical health officer as the case may be. Special printed forms are being got ready for distribution. The police commissioners have granted the use of one constable from each police divison as a Sanitary Inspector to be under the control of the medical health officer, and they are to work as they did last summer. The medical health officer, Dr. Canniff, has had a number of forms printed as directed by the act, for reporting infectious diseases and deaths by them, which are now being sent out to all the medical practitioners in the city.

An important and influential meeting was held on the 26th ult, when the

provincial and local boards of health were represented and a number of leading architects, plumbers and sanitary engineers were present to hear an address from the secretary of the canadian sanitary association. A local branch of the association was formed with Mr. Henry Langley, president, Mr. J. Wright, plumber, vice president, and Mr. Alan Macdougall, sanitary engineer, as secretary. The meeting was unanimous in forming the association, the objects of which are to "promote the interests of sanitary science, particularly in reference to local requirements." We hope to be able to give accounts of their proceedings from time to time.

And now to all our readers and to the public generally we say, do not let the season get too far advanced before taking action; be up and doing at once. Organize associations, there is not a hole nor corner in the province where there is not plenty of work to do: farmers have plenty to attend to in arranging for the disposal of stable and other manure; milk houses should be looked to, that everything in and around them are scrupulously clean; and village, town, or rural corporations see that privies are replaced by earth or ash closets, or are properly cleaned out disinfected and located so as not to interfere with the source of drinking water; and also see that these sources—wells, springs, or otherwise are examined, cleaned out, or filled up. Every human life has a value,—a monetary value—just as much as a farm, horse or cow. See to it that the cellars are thoroughly drained, that stables or cow houses are kept clean and well ventilated and lighted. A horse has to breathe as well as a man, and if it be well cared for during the hot nights, it will be just as much refreshed by a good nights sleep as its owner, and in return will do a greater days work than if kept in a close stuffy ill-ventilated stable, where it may have to stand sweating all night instead of enjoying its well earned refreshing and health giving repose.

THE CHOLERA

In the August number of last year of this JOURNAL there was a good deal upon the subject of cholera, and we need not now enter so fully into it as we did at that time. We then predicted as follows: "The probabilities are, according to those best able to judge, that the epidemic, if it is to come here at all, will not reach us before next summer." Though not yet on this continent, it is nearer to it than it was at that time. We doubt very much that it will reach Canada this Season, or if it should, that it will spread to an alarming extent. Dr. Koch, from personal investigations in Toulon, has expressed his opinion that it will probably spread through Europe during the summer, although this continent may escape by reason of its distance, its water communication only, and its good facilities for quarantine.

The preventive means and precautions taken at the quarantines and on the lines of travel in this coutry by the Federal Government, through the Department of Agriculture, will now after the proposed new quarantine regulations about to be issued be every efficient, and the disease germs will not readily pass the Cordon Sanitaire. It is just possible however that spite of all this, in some unthought of way, the germs might be brought into some part of Canada. The development and spread of the disease would then depend upon the sanitary condition of the locality and the action of the local authorities. It would be well therefore if every place were prepard for it in case of such possible importation. Three distinct outbreaks of cholera, in 1873, in remote parts of the United States were traced to the unpacking of personal effects of immigrants who had come into New York city on uninfected vessels, exciting no suspicion there that they carried the infection of cholera. Within thirty-six hours after they unpacked their effects, the first cases of the disease occurred. These were at Carthage, Ohio; Crow River, Minesota; Yankton, Dakota.

IMMEDIATE CAUSE OF CHOLERA.—Recent researches in Egypt and Calcutta,

made at the expense of the German government, by Dr. Robert Koch, "one of the most successful detectives of disease causing germs, seem to demonstrate, what general observation of the disease had already indicated, that cholera is caused by the growth and reproduction in the body of innumerable bacilli or one-celled plants of a kind peculiar to this disease, invisible to the naked eye; that these bacilli may enter the body by the air inhaled, but are far more likely to enter by food or drink taken into the stomach; that they are present in the excreta of a person sick with cholera, and in clothing soiled thereby, and may be on almost everything that comes in contact with his body." Dr. Koch's investigations show that "the bacillus of cholera can live and reproduce its kind indefinitely in certain but not in all substances outside the body, namely, in certain alkaline but not in acid solutions; and as the normal condition of the stomach is acid, that it cannot live in the human stomach in its normal condition. The intestinal juices being normally alkaline, the bacillus can probably reproduce itself therein without limit whenever it can pass through the stomach." This makes it of special, indeed, it appears to us, of the first importance, that in times of danger from cholera the stomach should be kept in a natural healthy condition.

PRECAUTIONARY OR PREVENTIVE MEASURES.—The means by which the cholera germ or bacillus may be prevented taking root, developing and spreading in any locality, may be summed up in the following words: The *complete* removal and destruction of *all* waste, used up, excrete, dead matters, from the blood, from the person, from the dwelling, from the yard, from the neighborhood. It is in used up, excrete matters only, it appears, that these organisms grow and multiply. The very name of the class or group to which the cholera bacillus belongs, *Saprophytes*, signifies plants which live upon decaying organic matter. For example, we find, on the one hand, that Toulon, where the disease first made its appearance in Europe, about a month ago, and has been so destructive of life, is said to be "an extremely filthy place" "one of the most filthy places in Europe." In a like condition is Calcutta, when there has been a serious outbreak of cholera, and where there were in April last over 800 deaths from the disease. On the other hand, there is a small Moravian colony, called Sarepta, in a bend of the river Volga, noted and eulogized for its minute and absolute cleanliness. The cholera has never made its appearance in this spot, it appears, but has passed by it again and again, and committed terrible ravages around it.

PERSONAL PREVENTIVE MEASURES.—The strictest temperance in all things, personal cleanliness and regular habits should be observed by every individual; and the diet should be plain but nutritious. This in order that all the bodily functions may be kept in as perfect a state as possible and that there be no waste, used up matters retained in the blood or fluids. These, with a fearless, tranquil contented mind, usefully employed, will do more to protect an individual from cholera, even in the midst of an epidemic, than all other preventive measures combined. Fear of the disease—mental trepidation, depresses the body and retards functional activety, and so predisposes to the disease. Trust in perfect preventive measures and have no fear.

GENERAL PREVENTIVE MEASURES.—It is not necessary to enumerate the places which should be cleaned and kept clean—the yards, stables, closets, cess-pools, slaughter-houses,—but *every place*, every corner, should be kept absolutely free from every trace of contamination. All places where filth has been should be disinfected or lime wached, or both—lime-washing indeed being a sort of disinfection. All sewers should be freely flushed and these and the street gullies most liberally disinfected. The water and food supply should be carefully looked after and only the purest used.

Dr. Saunders, medical health officer, London, Eng., recommends that the roadways be daily sprinkled with water containing some "germicide"; the courts

and alleys flushed and deodorized daily, and the entrances and side-walls of the narrower courts lime-whitened occasionally; all house refuse removed daily, and the regulations for the removal of all kinds of animal and vegetable refuse from taverns and restaurants stringently enforced. All places where fruit is kept and all butcher shops should be very closely looked after. In short, *every particle* of waste organic matter, even to the wash water, should be removed out of the cities and towns and far away from dwellings *every day*.

THE PRIVY VAULTS THE WORST OF ALL.—If the people in the towns and villages in this country are in earnest and mean to make a thorough cleaning up and be prepared for a possible visitation of cholera, in order that the putting in order may be thorough and complete it will be absolutely necessary to remove every vestige of filth from the privies. It will not be enough to clean the yards and lanes and streets, which after all are of little importance when compared with the closet excrement. Nor will it be enough to clean out the filth holes or vaults of these closets and permit them to be used again; they must be thoroughly eradicated—the foul soil immediately adjoining removed, and the excavations filled in with clean soil. This may seem like a great undertaking to those especially who have a row or rows of houses, but after all it would not prove to be such if gone about systematically, and there is no getting over the absolute necessity for it, if fair cleanliness is to be secured, and it must therefore be faced; besides, even if the cholera does not come, the cleaning will "pay" many fold in any place, in the reduced general sickness-rate.

DISINFECTANTS.—There is much in reference to disinfectants that is not well understood and is very misleading. It has been stated that the academy of health at Paris decided that disinfectants would not prevent the germination, of cholera. Disinfectants that were not very strong, or as frequently used, probably would not prevent germination but strong enough disinfectants would, that is, if sufficiently abundant.

Copperas, Carbolic acid and such, as ordinarily thrown onto a lot of filth in a privy pit or a cess-pool, would not prevent the germination of the cholera bacillus there. The filth should never have been allowed to accumulate. It must be removed, in toto far away from habitations, and mingled with large quantities of dry earth, or other powerful disinfectant in abundance. There could hardly be enough disinfectant matter, dry earth or any other, put into an ordinary privy vault to destroy all composing organic matter in the vault, and prevent the germination of disease there. As usually employed, they destroy bad smells for a time, and do some good, but he is not a wise man who would trust his life to so imperfect a remedy. The filth must be all removed and destroyed, and disinfectants freely used in and about the places where it has been. What is the throwing into a privy vault, containing many barrels of foulest filth, of a few pounds of copperas? A vain, futile, misleading effort.

AFTER THE DISEASE HAS APPEARED, the complete isolation of those affected is of the first importance, together with free disinfection or destruction by fire of all their excreta and clothing. The bodies of the dead should be wrapped in cloths wet with strong disinfectants and buried as soon as possible. A zinc solution, consisting of half a pound of sulphate of zinc (white vitriol) and a quarter pound of common salt to each gallon of water, answers very well for receiving the excreta, disinfecting the body, &c.

The greatest possible care should now be exercised in regard to the food and water supply, for fear they may have been in some way contaminated by particles of infection. It would be safest to thoroughly boil all drinking water and milk. Do not fear the disease, we say, but use all precautions—prepare.

AN Ohio girl sued a man for breach of promise and proved him such a scoundrel that the jury decided that she ought to pay him something for not marrying her.

"DID you give Johnny the medicine, Mrs. Brown?" asked the doctor "Oh, yes, doctor," replied the loving mother; and then she added, innocently, "and it don't seem to have done him the least harm."

Matters Recent and Current.

GERMS AT SEA.—Observation has show that the air above the sea is singularly free from the low forms of organic life. MM. Moreau and Plartymansion in a voyage from Rio de Janeiro to Bordeaux have found that over the open of the sea at a distance from the vessel, the air contained very little solid matter, but that the atmosphere immediatly about the vessel practically swarmed with micro-organisms; the vessel seemed to be surrounded by an "atmosphere of microbes." Land breezes appear to become rapidly free from the multitude of organisms which they carry with them from populous districts. M. Mignel, regards the fall of germs into the sea as a rassuring fact; breezes blowing from the distant continents, which might otherwise bring epidemics with them, become purified in crossing the ocean.

A MEDICAL ASSURANCE SOCIETY.—At one of the meetings of the Ontario medical association, Dr. Powell of Ottawa, in a communication, proposed the formation of a Medical Mutual Life Assurance and benefit Society. A London (Eng) Exchange says, the success which has attended the recent formation there of such a Society, at so early a period of its development, is in the highest degree satisfactory. The advantages offered are:—1. A certain sum per week according to amount of premium, during illness. 2. An annuity after 65 years of age. 3. A certain sum at death. The Society is on purely mutual principles, the whole of the funds becoming the property of the members, whose liability is strictly confined to the quarterly premiums. We want such a Society in Canada.

THE IMPORTANT DISCOVERY have been made, according to a late London medical exchange that it is possible for syphilis to impart its malignant property to vaccine lymph. Dr. Cory deliberately caused himself to be inoculated with vaccine lymph, derived at four different dates, between 1877 and 1881, from emaciated blotched infants, severely and unmistakebly syphilitic; the last experiment, made on July 6th, 1881, was successful, and twenty-one days after, local papules formed; subsequently the axillary glands became affected, and constitutional symptoms fully devoloped. Dr. Buchanan remarks, "the lympe of a vaccine vesicle upon an actively syphilitic may, it would appear contain the virus of syphilis, even when there is no recognised admixture with the lymph of matters foreign to it. But that is all."

TYPHOID FEVER AND MILK.—Often in this JOURNAL the great importance of a system of dairy and milk inspection has been urged. Milk is very prone to absorb disease germs, and is especially fitted for conveying the same. This, together with the manner in which milk is distributed in towns and cities, makes it very probable that outbreaks of typhoid and diphtheria more frequently arise through the milk supply than is commonly suspected. In Great Britain many cases of this sort of infection have been reported, but as yet little definite has been observed on this continent. In the report of the New York State Board of Health, Dr. F. C. Curtis gives a full report of an investigation of an epidemic of typhoid fever, in Port Jervis, New York, a place of about eight thousand people. The following are the results: "The epidemic was one of true enteric fever. It made its appearance in a previously healthy locality. It arose suddenly and ended suddenly. It was limited to the village. It exhibited no local foci of infection. It affected several members of a large proportion of the affected families Eighty-seven per cent of the cases occurred among persons using the milk supplied by one vendor. One half of the families using this milk were taken with this fever. The persons using this milk constituted about five per cent. of the entire population. But two-thirds of the milk supplied by this vendor was from the suspected source. The possibility of the milk becoming infected from the cases of the disease at the dairy farm is established. There was no cause affecting the subjects of the disease in common, except the use of this milk. From the data thus obtained, it is certain that the epidemic was caused and spread by the medium of infected milk.

THE SPECIAL QUESTIONS which have been arranged for discussion in the Health Section at the next Social Science Congress, which is to be held at Birmingham on September 17-24, are: (1) What is the best method of dealing with (*a*) town sewage, (*b*) the products of house and street scanvenging, and (*c*) the products of combustion? (2) What are the best means, legislative or other, of securing those improvements in the dwellings of the poor which are essential to the welfare of the community? (3) How far may the average death-rate of a population be considered an efficient test of its sanitary condition; and by what means can the high death-rate of children be reduced?

MEDICO-LEGAL—SEWER GAS.—That prolific cause of desease, sewer-gas, is one of the hardest things to discover in a house by a superficial examination, and the cases are increasing where a tenant tries to escape payment of rent because of this defect. The law, however, is usually on the side of the landlord, to the extent that he is under no obligation in the matter, except where he makes representations that are false. According to the *Philadelphia Medical Times*, however, a recent case in a New York court establishes the rule that, if the tenant says he does not care to exmine the house, but will rely upon the landlord's statement that it is in good order, and sewer-gas is subsequently discovered, the house can be abandoned and rent cannot be collected.

IN THE MORTALITY STATISTCS of the large cities in Great Britain the Registrar General has initiated a great improvement. Hitherto only the death-rate for the last week was given, but henceforward the death-rate in each of the three preceeding weeks will be added, so that by a simple calculation the average for the month may be obtained. This will lessen the liability to error from causes interfering with the registration of deaths, which are much more likely to make themselves felt in a small population than in a large one. A single week's mortality return gives little real information as to the health of a town.

FIRST AID TO THE INJURED.—In many cities there are societies for giving early aid to persons who are accidently or suddenly injured. One has long been in existence in London, Eng., and one was formed in New York two or thee years ago. It is said that in many other cities people are following the good example and organizing such societies. They teach "what should be done in emergencies when there is no physician at hand, when we must ourselves either do something instantly or stand helplessly by and see a man suffer the agony of a broken limb or suffocate, or bleed to death, simply because we do not know how to help him." In New York the society's instruction is of the most practical character. It is given by means of lectures, accompanied by illustrations, a "subject" being present at each lecture, the pupils being furnished with the *Hand-book of First Aid to the Injured*, published by the society. More than one thousand lectures have been delivered in New York city alone by well known physicians.

AT THE HEALTH EXHIBITION in London last week was given a *conversazione*, which it is said the many thousands who were present will not readily forget. The scene in the gardens with the myriad many coloured lights, the plash and glitter of the fountains, the strains of the bands, and the crowds moving about under the trees, was as exceptional a one in this country as the evening was exceptional. Everyone was there, though not perhaps in the sense in which that phrase is used in the Society journals. There was genius somewhere at work in the organisation of the *fête*, which has distinctly given Hygeia a lift up in the estimation of many. Next month we shall give a description of things in the exhibition.

THE LATEST NOVELY in NEW YORK City is paper soap, for travelers. Sheets of paper, coated with soap, are put up in the form of a small book of about three inches square. There are fifty soap sheets in each book, costing in the aggregate about as much as an ordinary cake of soap.

THE NEW YORK *Medical Journal* has a table giving the number of inhabitants to each acre of park in the chief cities of the world. New York city has one thousand, three hundred and sixty-three people for each acre of park—Paris has but thirteen people for each acre. These are the two extremes. The average of other cities is about two hundred. Of the list given this number is very uniform. The cities of the old world, for the most part, have proportionately more park room than the cities of the new.

IN THE *Philadelphia Medical Times* (July) we find the following truths: "Filth means disease, when interpreted in biological terms, and, where a favorable soil exists, the germs of disease, whether microscopic or ultra-microscopic, will not be slow in developing. If an epidemic, or a succession of epidemics, will teach this lesson to health authorities it will lead to an advance in State medicine which may eventually be worth all that it cost, in preventing future plagues."

IN LUCK.—from *Harpers Weekly* we learn that there is less filth lying exposed it the streets of New York now than at any other time in many years. The Weekly hints at "luck," and says, that the city is so clean and so well prepared to resist the spread of cholera, in the event of its coming, is not due to the efficiency of the street-cleaning service, but to the almost unparalleled showers that came not long ago. They flooded the streets with a volume of water sufficient to sweep away the accumulated filth, and left the lower streets almost as clean as those of Murray Hill.

RESULTS OF A RECENT INVESTIGATION by the British Medical Association give strong color to the theory that consumption is infectious. Circulars were sent out to over 1,100 physicians, asking for opinions and experiences in regard to the infectiousness of the disease, and of the number who replied a decided majority expressed a belief in the affirmative. Of the cases reported there were 192 where the disease was communicated from husband to wife, or vice versa, and in 130 of these cases the fact is distinctly noted that no family predisposition to consumption existed in the person who took the infection.

INVESTIGATIONS made at the Agricultural College of Massachusetts (Detroit Lancet) show that the disease of "the yellows" on peach trees is due to a diminution of potassium in the peach tree. On supplying the potassium in the form of the chloride the yellows disappeared. The yellows consisted of fungi, but these could only live when the trees were insufficiently supplied with the potassium salt. May it not be that further study will show that some similar condition prevails in relation to bacteria found in the human body?

THE INTERNATIONAL HEALTH EXHIBITION, London (Eng.,) is likely to yield a large surplus. It has been suggested that this be used to found a central hygienic laboratory, wherein might be conducted under competent professors, every sort of research bearing upon the prevention of disease.

OLD TRUTHS REVIVED.—It is stated (*N. Y. Med. Times*) that over half a century ago, Hahnemann wrote that, "the contagious matter of cholera probably consist of excessively minute, invisible, living creatures"; and that he described their manner of propagation almost precisely as do Tynddall and Carpenter. Hahnemann also indicated the remedy which, in epidemics of cholera, "when given according to his instructions, has met with wondeful success." To insure the destruction of these organisms he recommended that a drop of the saturated spirits of camphor be given every five minutes, camphor spirits to be well rubbed into the skin, an enema to be given of two teaspoonfuls of spirits of camphor in a half pint of warm water, and camphor to be distributed in the form of vapor through the room by placing some lumps of it on a hot iron. This appears to be in accordance with the theory that ordoriferous substances, from generating peroxide of hydrogen, are destructive of disease germs.

CARBOLIC ACID, Dr. Lee, of England, asserts is the best disinfectant for the air in roooms, because when combined with water and boiled, it evaporates with steam in a constant ratio and is therefore evenly distributed in the air.

SEWAGE AND RIVER WATER.—Franz Hulna has found that the water in the River Oder, above Breslau, is tolerably pure; that in passing through the city a continuous change for the worse takes place—increase of oxidizable matter and chlorine, a hundred fold augmentation of ammonia and albumnoid ammonia, and abundance of the organisms of putrefaction; gradual process of purification takes place—by contact with oxygen and vegetable animal growth, and at ten miles below, no indications of sewage could be detected either by chemicalor microscopical examination.

REGARDING THE SMALL POX epidemic in London (Eng.), which it appears is not decreasing, a correspondent of the *Times* states that the disease was soon stamped out in a town in South America by huge bon fires of creodoted railway sleepers to which gas-tar was occasionally added.

A NEW WAY OF PRESERVING MEAT gives some promise of being successful. It is that of injecting a warm solution of boracid acid and salicylic acid into the blood vessels of the animal to be slaughtered after it has been rendered completely insensible by a blow and the jagular vein has been opened. A party of gentlemen after dining off meat preserved in this way for many weeks, pronounced it very good.

MONEY PARESITES.—The Frankfurter Zeitung states that Dr. Reinsch has found, as the result of a long series of minute investigations, that the surfaces of 50-pfennig pieces (six pences) which have been long in circulation are the home and feeding ground of a minute kind of bactaria and vegetable fungus The thin incrustation of organic matter deposited upon their surfaces in the course of long circulation rendering them very suitable for this parasitical settlement.

BACTERIAL INVESTIGATION.— Professor Bollinger has been the means of founding in the Munich Pathological Institute a new laboratory for bacterial investigations, where already a bacterial course of lectures had been commenced for young docenten of the medical faculty.

THE TORONTO NEWS (July 26) says, the sanitary inspectors are waking up and the work of cleaning that city has been begun. "This is gratifying. If the cholera will only be kind enough to defer its visist for a couple of years we will be in a moderately good sanitary condition when it arrives— provided, of course, that the scavengers are kept busy." How about other cities?

Individual Hygiene.

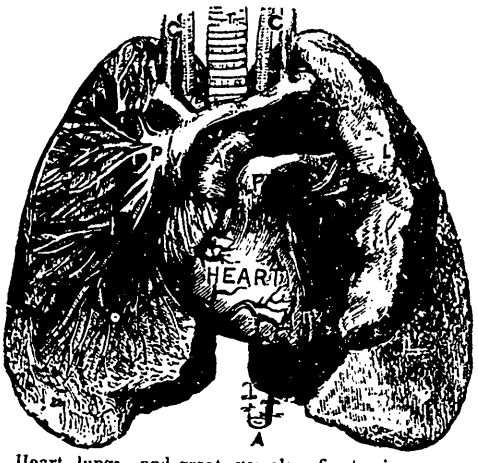
THE LUNGS AND HOW TO PRESERVE AND STRENGTHEN THEM.

In the May and June numbers of this JOURNAL it was pointed out that those who die of consumption have relatively small lungs and a small chest, and that the mortality from inflamation of the lungs "seems to have a direct ratio to the respiratory capacity," or in other words, to the size of the lungs. A great many people have relatively small lungs, and there are many who do not use and exercise their lungs to the full extent to which these organs would naturally admit of. Hence one of the chief causes of the frequency of lung disease. It is proposed to give now simple directions by means of which the chest and lungs may be largely developed and increased in size. By like means, the writer of this, when past twenty years of age, increased the circumference of his chest to the extent of two inches; his constitutional vigor and general health being proportionately improved.

As it will be most desirable for all about to carry into practice the directions herein given, to know some thing about the structure of their chest and lungs, those of our readears who are

familiar with the anatomy and physiology of these organs will kindly bear with the following brief description of them for the benefit of those who are not so familiar.

Fig. 1.

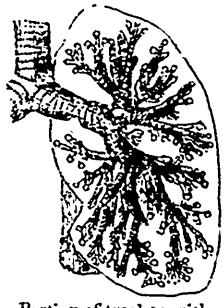


Heart, lungs, and great vessels;—front view. L.L. left lung, with front edge turned back. The cut represents a portion of the right lung cut away, showing division of vessels.

The lungs are made up of two vast membranes (one for each lung), folded into minute bladders, called air cells, with little tubes, called bronchial tubes, leading from the wind pipe, for conveying air into the cell. The air cells are irregular in shape, and each is covered with a close net-work of minute blood vessels; so that the blood is on the outside of the air cells and the air is within them. The cells cluster around the little tubes and the branch tubes somewhat like grapes upon their stems. Imagine a great many clusters of grapes packed closely together, and the stem of each cluster fastened to a larger stem, like the branches of a little bushy tree, and imagine all the stems and grapes hollow, and each grape wrapped in a close net work of hollow threads, and one will have in mind something in structure not very unlike a lung. The stems represent the bronchial tubes; the grapes, the air cells; and the threads, the blood vessels, called capillaries Only something to represent the arteries and veins, for conveying the blood to and fro between the capillaries and heart would be wanting These in the lungs extend along beside the bronchial tubes. There are two lungs, one on each side, which with the heart and other large vessels quite fill the chest (Fig. 1). After air once enters the lungs, at birth, they always contain some air, and will float on water; hence the vulgar name, 'lights.' The membrane forming the air cells is elastic and will stretch considerably; as one will find by blowing into the lungs of a small animal.

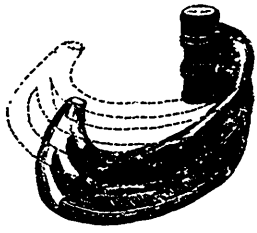
The walls of the chest are formed chiefly by the ribs, with two layers of muscular fibres, the intercostal muscles, between each pair of ribs (Fig. 3). The ribs are attached behind to the spine, each by a movable joint, and as one may see by examining his own ribs or those of another person, they are considerably lower in front than at the spine, so that when the front ends are raised by the muscles, the breast bone is lifted and moved forward, thus the circumference of the chest is much increased. The floor of

Fig. 2.



Portion of trachea with bronchial tubes of one side leading to air cells.

Fig. 3.



Three ribs showing the two layers of intercostal muscles between.

the chest (dividing it from the abdomen) is formed by a broad, thin muscle, the diaphragm, which arches up deeply into the chest, like an inverted dish (Figs. 4 and 5). When its fibres contract, it becomes flattened, and presses forward the contents of the abdomen, as one can feel by placing the hand on the stomach when drawing in air, and the *depth or length* of the chest is thereby greatly increased.

In inspiration, the front ends of the ribs are raised, chiefly by the outer layer of intercostal muscles, making the chest broader; and the diaphragm is flattened and drawn down by the contraction of its fibres, making the chest deeper or longer; and air rushes through the nostrils, throat, and wind-pipe into the lungs,

stretching them and keeping them pressed close to the walls of the chest. (Fig. 4.) In expiration, the intercostal muscles and diaphragm having ceased to contract, the ribs are drawn down, chiefly by the inner intercostals, and the diaphragm rises high up into the chest again, helped up by the contents of the abdomen, which are pressed upon by the muscular walls of that cavity, and the stretched lungs return to their former size again. (Fig. 5). We breathe thus from 16 to 20 times every minute—the ribs rise and the diaphragm descends, and then both return to their formers tate again.—*To be contin'd*

"THE WEEK," we regret to observe, has given publicity to very erroneous and misleading statements regarding the quarantines in Canada and especially of that at Grosse Isle. We have not space at this date to enter into details, but the public may rest assured that every thing possible and practical has been and is being done by the Minister of Agriculture to prevent, in every possible way, any case of infectious disease getting onto Canadian soil.

IN FRANCE, the Government having requested the Academy of Medicine to state its opinion as to the best measures to be adopted for the prevention of cholera. The conclusions adopted by that learned body, the Academy, are substantially the following:—(1) Land quarantines are useless and injurious, and cannot be recommended. (2) Disinfection of travellers and their luggage is equally useless and injurious. (3) Medical attendants should be posted at every railway station, to take charge of all travellers who appear to be affected with cholera, and to convey them to a proper place of isolation and treatment. (4) Individual precautions are the best preservatives against cholera, and these ought to be carefully enforced by public authority and observed by private persons.

Seasonable Hints.

FRUIT AND NEW VEGETABLES, fresh and green, are now coming in Season, and they are very liable to disturb the stomach and bowels of all in whom these organs are not vigorous and healthy, and over indulgence in such foods will disturb these organs when even most vigorous and healthy They are harmful chiefly because they constitute a change from other articles of diet, because they are often eatan hastly, and because they are indulged in too freely, especially at first. The great safeguards are, studied moderation, thorough cooking of all that are usually served in this way, and the most complete mastication

BATHERS, too, require to be frequently reminded of the danger of going into cold water when the body is very hot. Many deaths have been caused thereby. Sip a little cool water and wait till the body cools—but don't go into cold water when chilly.

Literary—Books Received.

A GOOD SERMON ON "CRANKS." Facts are sometimes given in an amusing way. The *Burlington Hawk-Eye* gives the following;—from a father to his son: What would we do were it not for the cranks? How slowly the tired old world would move, did not the cranks keep it rushing along! Columbus was a crank on the subject of American discovery and circumnavigation, and at last he met the fate of most cranks, was thrown into prison. and died in poverty and disgrace. Greatly venerated now! Oh, yes, Telemachus, we usually esteem a crank most profoundly after we etarve him to death. Harvey was a crank on the subject of the circulation of the blood; Galileo was an astronomical crank; Fulton was a crank on the subject of steam navigation; Morse was a telegraph crank. *All the old abolitionists were* cranks The Pilgrim Fathers were cranks; John Bunyan was a crank; any man who doesn't think as you do, my son, is a crank. And by and by the crank you despise will have his name in every man's mouth, and a half completed monument to his memory crumbling down in a dozen cities, while nobody outside of your native village will know that you ever lived. Deal gently with the crank, my boy. Of course, some cranks are crankier than others, but do you be very slow to sneer at a man because he knows only one thing and you can't understand him. A crank, Telemachus, is a thing that turns something, it makes wheels go round, it insures progress. True, it turns the same wheel all the time, and it can't do anything else, but that's what keeps the ship going ahead. The thing that goes in for variety, versatility, that changes its position a hundred times a day, that is no crank; that is the weather vane, my son. What? You nevertheless thank

heaven you are not a crank? Don't do that, my son. May be you couldn't be a crank, if you would. Heaven is not very particular when it wants a weather vane; almost any man will do for that. But when it wants a crank, my boy, it looks about very carefully for the best man in the community. Before you thank heaven that you are not a crank examine yourself carefully, and see what is the great deficiency that debars you from such an election

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HOOPER'S PHYSICIAN'S VADE MECUM: A Manual of the Principles and Pratice of Physic, with an outline of General Pathology, Therapeutics and Hygiene. Tenth Edition Revised by W. A Grey, M. B. Cantab., F. R. S., Fellow Royal Col. Phy.; Late Prof Forensic Med and Hyg., King's Coll., Lon, etc. etc; and John Harley, M. D., Lond., F. L. S, F R. C. P Hon. Fel King's Col! Late Phys. Lond. Fever Hospital, etc. Volume I., illustrated. 8vo. pp. 347. New York: Wm Wood & Co.

This is one of the most useful books in medicine, and nas had the confidence and esteem of the profession for over half a century. It is a most reliable and concise treatise and presents the most advanced views of the subjects on which it treats. Before treating of general diseases it gives chapters under the following heads: Health and disease; causes of death; physiology and pathology; symptoms and signs of disease; hygiene; general therapeutics.

PRACTICAL MANUAL OF OBSTETRICS: By Dr. E. Verrier, Lecturer on Obstetrics, Faculty of Med., Paris. Fourth Edition, enlarged and revised, with *Four "Obstetric Tables" of Prof. Pajot.* 105 illustrations. First American Edition with revision and annotations by Edward L Partridge, M D., Prof. Obstet, New York. Post-Graduate Med. School. 8vo, pp. 416. New York, Wm Wood & Co.

The objects of this volume are to give a *résumé* of the work imposed on the obstetritian, and to aid the memory; and it holds an intermediate position between that of the students manual and the elaborate treatise.

Subscribers to Woods excellent Series have cause for gratification in the publication for them of the above named volumes.

THE CANADA EDUCATIONAL MONTHLY, May-June Midsummer number (Canada Educational Monthly Publishing Co, Toronto, $1,50 a year,) contains a great variety of papers for the lay and professional reader. This is a good one by Mr. Inspector Dearness "The Sanitary Conditon of Public Shchools, and an other by Miss. Adams "On Co-education" The University and School Departments are replete with matter full of timely help to teacher.

THE SCHOOL SUPPLIMENT, monthly: Toronto, Eaton, Gibson & Co. publishers This is a really handsome publication, practical and spicy. The July.-August number is very handsomely illustrated

MANUAL OF THE ACTS relating to the Department of Agriculture, Statistics and Health, Manitoba, comprising the Agriculture, Statistics and Health Act. 1883, as amended, the Public Health Amendments Act, 1884, &c., &c.

Questions and Answers.

A subscriber writes to the Journal as follows: As you have thoughtfully opened your Journal for "Questions and Answers" pertaining to health, can you inform your readers where a Rheumatic patient should locate that he might spend the remainder of his days with the least amount of pain from that torturous complaint.

Truly yours, BRUCE.

This comes within the province of cure rather than provention We prefer to ask some other one or more of our readers, who may have experienced the benefit of some favored spot, to answer. Meantime we recommend a locality naturally or otherwise well drained (i, e, a dry soil) and so far as possible protected from cold damp(eastern) winds. Probably the Eastern or even the Western slope of the Rocky Mountains N. W. T. or B C.. If the *writer* means outside of Canada, there are many localities in the Southern part Of the Continent highly favorable. The diet of the sufferer might receive consideration as well as the locality.

"OLD SUBSCRIBER"—In the article on cholera, in this number, page 275, you will find all you require in answer to your question regarding disinfection.

Publisher's Notices.

FOR TENTS, CAMP FURNITURE, HAMMOCKS and all such things purchasers would do well to call at the National Mfg. Comp. 160 Sparks St., Ottawa.

ESTERBROOKS PENS are becoming very popular in Canada and the sale of them is largely increasing in this country.

BIRDS AND ANIMALS are stuffed to order, in first class style and at low rates, at 319 Yonge St., Toronto. The largest establishment of the kind in Canada. No ornaments are more elegant and nicer than these natural ones.

THE CANADA SANITARY ASSOCIATION, under the presidency of Dr. Sweetland, of Ottawa, meet in Montreal about the 27 of August, at the time of the meeting of the Canada Medical Association of which Dr. Sullivan of Kingston is president.