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HOW TO FIGHT INFLUENZA AND ALLIED DISEASES.

BY

ROBERT BELL, M.D., F.F.P.S. GLASGOW,

Physician to the Glasgow Hospital for Women.

*Referee for Scotland to the Royal National Hospital for Consumptives,
Ventnor, etc.,*

AUTHOR OF—

"STERILITY, ITS CAUSES AND TREATMENT"—"WOMAN IN HEALTH AND SICKNESS"—

"OUR CHILDREN, HOW TO KEEP THEM WELL AND TREAT THEM WHEN
ILL"—"THE HOME BOOK OF MEDICAL TREATMENT"—

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P R E F A C E.

TO relieve suffering is the privilege of every medical man. To anticipate Disease, and prevent its occurrence whenever this can be accomplished, is his duty. I have, therefore in the following pages endeavoured to throw a little light upon certain questions, which may enable my readers to take precautions which are essential to the preservation of health. I am urged to do this by the knowledge, gathered from a long experience, that the public as a whole are sadly ignorant of even the rudiments of Hygienic Law.

R. B.

29 LYNEDOCHE STREET,
GLASGOW.



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HOW TO FIGHT INFLUENZA AND ALLIED DISEASES.

SO much has been written on the important subject of Influenza, both as to its causation and treatment, and this apparently without having much effect in reducing to any appreciable extent the number of victims who annually succumb to its virulence, or the frequency of its visits, that I consider it a duty to point out how its ravages may, at least, be modified. I would even venture to go a step further, and will endeavour to indicate certain lines of action which if pursued, will I believe, at least mitigate the evil.

No one will, I trust, hesitate to agree with me, when I affirm that a person, enjoying *robust* health, is as long as this condition obtains, proof against disease, no matter what its nature may be. That is to say, as long as the vitality of the individual is unimpaired by extrinsic or intrinsic causes, his vital vigour will be sufficient to enable him to defy not the entrance certainly, but the continuance and development of disease

germs within his body, no matter what their type may be. In other words, the vital energies of a perfectly healthy person are more than able to nullify the morbid power which these germs possess, even when they find an environment which is suitable to their peculiar requirements, and pabulum which, in circumstances favourable to their growth, they could utilize, and thus be enabled to exert their power for evil. In whatever way we view the subject, it becomes a case of the survival of the strongest, and this important fact should be impressed upon everyone. Before a disease can manifest itself—and this applies specially to blood diseases, of which Influenza is a prominent type—the blood must, prior to this taking place, have had its normal healthy condition interfered with by one cause or another. This may have depended upon some morbid influence either internal or external to the economy; but whatever its origin, the consequences are invariably the same—viz., a departure from the normal healthy standard resulting in a reduced tone of the system, thus developing a proneness to disease. Always bear in mind, therefore, that the way to ward off disease is to keep the *blood pure*, no matter what the malady is—be it Influenza, Pneumonia,

Gout, Rheumatism, or even Toothache. If everyone would only endeavour to carry out this principle, the results would prove highly satisfactory, as many diseases which at present daily claim such a vast number of victims would, if not actually eradicated, at least be very much modified.

It will not be difficult to comprehend that if the blood is vitiated by any means whatever, there will necessarily follow a depression of vital force, this as a rule being indicated by lethargy, ennui, headache, tendency to shiver, etc. These symptoms, I need hardly say, never manifest themselves in a healthy person, nor can they be described as indicating an active diseased condition *per se*; but we must acknowledge they constitute, if not an actual, yet beyond doubt a potent, predisposing cause of disease.

And now it will be my endeavour to demonstrate what these important factors consist of, and how they operate. But before proceeding to do so, I should like to recall the astounding fact that many people who seem to be of splendid physique, and who are apparently in the most robust health, are not unfrequently struck down by such diseases as Influenza or Pneumonia, the latter, in a considerable number of

instances, supervening on the former. I refer to this circumstance in order to accentuate as much as possible my succeeding remarks.

The principal factors which, in my opinion, predispose to disease (and I give them in their order of importance) are, constipation; defective ventilation, including sewage contamination of the air; over-fatigue; prolonged strain of mind and body; insufficient food and clothing; and prolonged exposure to cold and wet; yet none of these, I affirm, will give rise to a specific disease *per se*.

Constipation may be described as an unsanitary condition of the bowels, and, if habitual, is invariably injurious in its effects, inducing, as it assuredly does, a morbid condition of the blood. This assertion it will be difficult to refute when we consider for a moment how constipation operates. No one I suppose is unacquainted with the fact that the mucous membrane of the lower bowel (or colon) possesses, to a considerable degree, the power of absorbing fluids. This knowledge is daily taken advantage of by physicians in the treatment of certain diseases in which the stomach refuses to retain food. Nutriment is, therefore, as an alternative administered by the bowels, and this we know

becomes absorbed by the mucous membrane, and through this channel is passed into the blood. This being correct, the question naturally arises—Is it not also able to absorb and in like manner pass into the circulation the noxious and poisonous fluids of which to a considerable extent the fæces are composed? The answer to this is, that it assuredly does act in this manner, and the certainty of this resulting as a sequelum, where constipation exists, is manifested by the salivary secretion becoming tainted, which circumstance gives rise to a disagreeable taste and offensive breath; a dusky complexion; dark lines under the eyes where the skin is thin and transparent, thus permitting the discolouration of the blood to be visible; frontal headache; lethargy; mental depression; cold feet; a tendency to shiver, etc. Now, is it reasonable to suppose that when these symptoms have manifested themselves—and they are invariably present to a greater or less degree when a *daily complete* evacuation of the bowels does not take place—that anything else can result other than a vitiated condition of the vital fluid? It may be developed in an aggravated or modified degree, yet this unsatisfactory condition is never absent

when constipation is in evidence. I say, is it reasonable to suppose that the quality of the blood does not in these circumstances become sadly deteriorated, and the bodily health thereby reduced to a serious extent? This unhealthy condition, moreover, is highly favourable to germ life, and also to its rapid development. It thus conforms to all the requirements of germ life, and simultaneously provides a suitable environment for the *casus morbi* within the animal economy. There is thus a dual condition established within the blood which is highly in favour of the germs of disease, but altogether opposed to the interests of their unwilling host. Now, what appears most incomprehensible is that, though this predisposing tendency to disease can most easily be rectified, yet, it is frequently, nay almost entirely, ignored by the public at large; and therefore, either through ignorance or negligence, I regret to say, is not given the attention which the subject assuredly deserves, nor does it receive sufficient consideration by medical men. If mothers could be prevailed upon to pay more strict attention to this important detail, they would most assuredly thereby save themselves no little anxiety and their children a vast amount of unnecessary

suffering, not to speak of the financial advantages that would follow.

One thing I maintain is, that anæmia, now so common among young girls, assuredly has its origin in habitual constipation. This disease of the blood is brought about by the gradual destruction of its red corpuscles, which cannot possibly retain their health and multiply in a contaminated fluid. This conclusion is established by the fact that the one method of reinstating the normal condition of the blood is only rendered effective by adding to the remedies employed some laxative medicine, which will have the effect of rectifying the primary condition.

It does not require much argument, then, to convince an unprejudiced mind how very materially a vitiated condition of the blood will promote the development of such diseases as Influenza, Pneumonia, Rheumatic Fever, etc. Indeed, in a very extensive experience, I have rarely seen these diseases develop where the pernicious condition I have referred to was not the primary factor. Bear in mind, I do not aver that it is always the *only* factor, though apparently in many instances it seems to be so, but it invariably plays a very important part in

the programme ; yes, a very important part indeed. Let me therefore insist upon everyone who is desirous of maintaining his health in such a condition as will enable him successfully to combat disease, to bestow unremitting attention upon this simple yet essential sanitary principle. But before leaving this subject let us for a moment glance at its bearings upon the economy at large. If we consider that a vitiated blood supply must necessarily exert a baneful influence upon the nervous apparatus by supplying it with a poisonous instead of a pure nourishing fluid, we are bound to acknowledge that it is impossible for it to perform its other duties properly. Now, we know that every organ of the body has conferred upon it a certain functional activity dependent upon the stimulus and energy conveyed to it by the nervous apparatus, which may aptly be compared to the driving power of an engine. If then this be interfered with by any untoward circumstance, will not this power be diminished *pro rata*? And if its energy is diminished, will not the functional activity of the various organs be diminished also, and as a natural sequence the healthy condition of the individual be reduced? In this way, then, we perceive the body is not

only rendered prone to disease from outside influences, but actually is capable of developing disease from within itself; for, as I have before remarked, the red blood corpuscles are destroyed in large numbers by the poisonous condition of the blood induced by fæcal absorption, anæmia being the direct result. Moreover, the effect upon the digestion in these circumstances is most marked, acid dyspepsia being a frequent concomitant, which in its turn develops the chief factor in the production of Gout and Rheumatism—viz., a preponderance of uric acid in the blood, and in all probability the production of this acid is dependent upon the vital action of a microscopic organism. Now, the *salts of uric acid* are only soluble in *warm fluids*; and as the deteriorated condition of the blood, in the circumstances I have mentioned, interferes with the vital energies of the red corpuscles, which are the carriers of heat and liberators of the products of decomposition, there is naturally induced a coldness of the extremities and also of the joints, in which the vascular supply is normally low. This being the case, the uric acid salts are deposited wherever the temperature is reduced below a certain point, and the accumulation of foreign matter—

which the salts of uric acid undoubtedly is—within the joints, or other fibrous tissues, produces the acute suffering and inflammatory symptoms which we call Gout and Rheumatism. This congestion, however, is nature's method of endeavouring to get quit of the poison by throwing an excess of warm blood into the part, and after a time we know it succeeds in effecting its purpose, but invariably a weakness is left behind, and a proneness to a future attack induced. In a like manner the various organs are liable to suffer; and if the primary cause of the evil is not removed, a diseased condition of the liver, kidneys, etc., to a certainty supervenes.

Defective ventilation stands next in importance as a predisposing cause not only of Influenza but of other diseases of a zymotic nature, for, be it remembered, that disease germs are comparatively inert in a pure atmosphere, and when bright sunshine is superadded to this their power for evil is still further reduced. In point of fact, their virulence commences whenever a vitiated state of the atmosphere is apparent, and increases *pro rata* with the circumstances which are opposed to the health of animals. Thus, we perceive, victims to a variety of preventible diseases are the direct result of their vitality being tempor-

arily reduced by living in and breathing a contaminated atmosphere, which condition of the air promotes the vigour and therefore the virulence of all morbid organisms. It is an ascertained fact that organic life is constantly present in the atmosphere which we breathe, though it is innocuous if the air be otherwise pure, and only awaits a fitting opportunity to develop its power for evil. One experiment, for example, will verify my statement. In a bedroom in the City of Glasgow thirteen varieties of microbes were obtained from the atmosphere therein contained. These were isolated and examined microscopically, each variety being cultivated in a suitable medium, and thus differentiated. But this is in parenthesis, and only serves to prove that my statement regarding the constant presence of these organisms within the atmosphere has been placed beyond all doubt.

Anyone who has been obliged to sit for a length of time in a crowded and badly ventilated hall must have experienced the sense of oppression which invariably ensues, this being accentuated if gas is the illuminating agent employed. These baneful effects, it is hardly necessary to remark, are due to the important circumstance that there is insufficient fresh air circulating to

supply the wants of the individuals present. As a consequence their lungs are for the time being continuously inflated by a vitiated instead of a pure atmosphere, the contamination being due to the expired air, exhalations from the bodies of the people, and the products of combustion. The invariable result is, the vital energies of each individual are reduced very much below their normal standard, while simultaneously the disease germs present are endowed with greater activity, becoming rapidly possessed of a potentiality which in the circumstances enables them to exercise with appalling effect their power for evil, whereas, were the conditions hygienic, they would remain harmless occupants of the atmosphere. It must be conceded then that remaining for a length of time in a crowded, badly ventilated chamber, be this large or small, not only predisposes to disease, but in addition increases the potency of the poison, which is the specific agent at work, and therefore intensifies its virulence. We cannot be surprised then if numerous victims become a prey to circumstances which in the face of such facts are monstrous. Is it not advisable therefore, and should it not be made compulsory, that wherever a large gathering is expected to take place, means be provided to

have the building ventilated, not in the perfunctory way which is at present adopted, but by ensuring a constant influx of an abundance of fresh air which has previously been raised to a comfortable temperature, this having been previously purified from all extraneous matter? Now, we know that this *sine qua non* can be effectively accomplished at a very moderate cost. If such a system of ventilation were made imperative in buildings such as churches, theatres, concert-halls, and the like, we would hear very much less of Influenza epidemics than we do at present, and I am convinced that if the House of Commons, Courts of Justice, and other places which for days together are the rendezvous of crowds of people, were supplied by such a system of ventilation, there would be a considerable reduction in the number of cases of sickness reported amongst those who are habitual attenders within their precincts. It is a notable circumstance that Influenza, as well as other diseases of a similar type, is invariably more prevalent in winter than in summer. This is not dependent upon the fact that the disease germs are in greater evidence during one season than another, but simply because they have more fitting opportunities of developing their potency,

these being the outcome of defective ventilation of houses, and over-crowded public buildings, wherein meetings are more frequent in winter, and cold draughts (which with the present system are inevitable), are strenuously objected to, the majority of people as a rule preferring a stuffy atmosphere to fresh air.

Another appalling focus of disease of this class is to be found in railway trains, where recently a heating apparatus has been adopted of the most pernicious type. This consists of a cylinder placed underneath the seats, which is kept constantly charged with steam from the engine. By this means the air that is contained within the carriage is maintained at a state of oppressive heat, without any provision being made for a constant and absolutely necessary renewal of the atmosphere, as anyone who has travelled from Glasgow or Edinburgh to London by the North-Western, Midland, or Great Northern Railways will testify. These Companies, ignoring *in toto* every hygienic law, have adopted this most unsanitary method of affording heat to their passengers, and in so doing have, on the other hand, provided death-traps of a most effective kind. This will appear evident when we consider that the air which is thus heated is

that which is stationary within the compartments, no provision being made for the influx of a fresh supply of warm air. The compartments therefore are filled only with air in such a vitiated condition, which is constantly being breathed over and over again, that headache, sickness, and ennui are inevitably the results, while the passengers at present have no remedy. Now, as I have stated before, this condition of the atmosphere favours the health, and therefore virulence of any disease germs that may be enclosed within the compartments. These will as a matter of course attach themselves to the upholstery, and from this be liberated every time the cushions are disturbed, also with every movement of the atmosphere. Moreover, the victims are prepared for the onslaught of disease by the unsanitary conditions present, while this has placed at its disposal every facility to enable it to instantaneously assert its powers. The result is, to which I can testify, that many victims have unhesitatingly attributed attacks of Influenza to railway journeys under such circumstances. The sense of suffocation is frequently so acute that some travellers insist upon keeping the windows open for ventilation, and when the body is relaxed, as it invariably is when subjected to such

an unhealthy heat, the tendency to inflammatory attacks resulting from a cold draught acting upon a relaxed body must necessarily continue to be very frequent. Another circumstance of a highly dangerous nature is that when this method of heating is adopted, the feet are liable to feel chilled while the head experiences an undue heat, such a condition of affairs being directly opposed to the laws of health.

Since the above was written the following has appeared in the *Medical and Surgical Review of Reviews*:—

“Railway carriages as a source of tuberculous infection has been the subject of a valuable report by M. Kelsh to the Paris Academy of Medicine, which clearly proves that the insanitary condition existing in railway carriages and other public conveyances is an unmistakable source of danger. The possibility of tuberculous infection in railway carriages was thoroughly investigated in Germany during the winter of 1890-91, when the extraordinary affluence of consumptives to Berlin, seeking treatment under Professor Koch, called the attention of the medical and daily press to the necessity for prophylactic measures. Herr Petri, of the German Imperial Sanitary Department, then made a series of experiments with the object of ascertaining the best means of disinfecting railway carriages and other public conveyances. Dust from the partitions, ceilings, and fittings was taken from 45 railway compartments. Cultures were made, and 117 guinea pigs were inoculated. 3 became tuberculous, proving that the specific bacillus was present. Of the 117

animals experimented upon 45 succumbed to other contagious diseases, viz., peritonitis 27, malignant œdema 14, hepatic abscess 2, abscess of the abdominal wall 1, tetanus 1."

Now these dangers could be entirely averted by adopting a simple and efficacious method of thoroughly ventilating the carriages and heating them simultaneously, viz., by means of an apparatus which provides for the automatic injection of heated air, which the movement of the train keeps constantly in operation. This method provides not only an agreeable warmth, but a superabundance of pure fresh air, so that a passenger never by any chance is able to breathe the same atmosphere twice over. Is it not then the duty of the Local Government Board, who have charge of the health of our citizens, to insist upon some such system being adopted, and interdict the unhygienic method at present in use? If only a small minority of railway travellers would exert themselves and insist upon having this important error rectified, I am convinced that their laudable efforts would, besides conferring an inestimable boon upon the travelling public as far as their personal comfort is concerned, also be the means of averting an enormous amount of disease. To me it is incomprehensible that so much indifference exists

when such a vital question is at issue. If there were the slightest difficulty in the way of having this simple method of ventilation adopted, there might be some excuse for apathy, but when the very contrary is the case, the absence of interest in a question of such vital importance is quite inexplicable.

Ventilation is a subject upon which the most vague and erroneous ideas prevail; the general opinion is that if air is only permitted to enter a building, no matter in how limited a degree, and then find its way out again by no definite exit, this is sufficient, and possibly it might answer the purpose to a certain extent if the individuals within the building were limited in number and provided with sufficient cubic space to enable them to breathe fresh air at each inspiration, but when a hall is crowded, or a railway compartment filled, the conditions are entirely altered, and in these circumstances it is absolutely necessary that provision be made so that the individuals present shall never be permitted to breathe anything but air which has not hitherto been contaminated by the breath of anyone else. This object can only be attained by injecting into each chamber, in a constant current, a superabundance of purified warm air;

I say *warm* air, for if cold air were employed it would neither be so agreeable nor yet so efficacious, because if the warm air is introduced at the feet, which will necessarily be the case if the above plan were adopted, it would by virtue of its own specific gravity rise in a continuous stream upwards and find an outlet at the roof, thus only coming in contact *once* with the breathing apparatus of the individuals present, besides, the feet would be kept constantly warm and the head cool, as air parts with heat very rapidly, but in doing so conveys this to the objects it comes first in contact with.

From my remarks it will be easily comprehended that defective ventilation is beyond all doubt a predisposing cause to disease. I have, moreover, endeavoured to show that absorption of foetid matter from the bowels is also a frequent and important predisposing cause. When, therefore, the one is superadded to the other, how much more prone to disease will individuals thus handicapped become when both unhygienic conditions simultaneously obtain.

There can be no doubt whatever that tuberculosis in cattle has been entirely induced by overcrowding these animals in ill ventilated byres. Such a thing is never heard of where

cattle are living in their natural state. Tuberculosis, in my opinion, is very much more an infectious than a hereditary disease, and nothing will induce its development more than overcrowding associated with bad ventilation. This has been most conclusively illustrated by the open-air treatment of this scourge. Nothing in the history of medicine has ever had such a markedly beneficial effect in its therapeutics as the method which is now being pursued in the Black Forest.

Before leaving the subject of ventilation as a preventive of disease, the subject of sewage gas contamination must not be omitted. Everyone is acquainted with the baneful and insidious effects of inhaling sewer gas, which is introducing by the lungs, thereby conveying to the blood, the noxious products which I have endeavoured to show are absorbed by the blood vessels from the lower bowel when an unsanitary condition exists there. Sewage gas when inhaled, therefore, though it does not, *per se*, produce disease, but as I have affirmed, predisposes to it, constitutes an important factor in conveying it to the system from the fact that the former becomes absorbed by water, thus conveying to the water the power of nourishing

and developing the virulent activity of germ life, which, when imbibed under the co-existing circumstances inevitably proves to be the exciting cause of such diseases as typhoid, diphtheria, and other kindred maladies.

No doubt considerable progress has been made of late years in sanitary science, and we have most satisfactory evidence that so far the efforts of our officers of health have borne most valuable fruit. One notable example needs only to be quoted to show how important this advance has been. I refer to the almost complete stamping out of what in my early days was a terrible scourge, viz., typhus fever. Had patients suffering from this disease been treated by being provided with a superabundant supply of pure fresh air, there is every reason to believe that the fatal results from this fever would have been very much reduced in number, and it has frequently been observed that patients who were supposed to be dead from typhus fever, having been removed into the open air, in numerous cases actually recovered, thus exemplifying most pointedly the beneficial and curative effects of fresh air in this particular disease.

The other predisposing causes which I have mentioned—viz., over-fatigue, continuous strain

of mind, insufficient food and clothing, and prolonged exposure to cold—will all act as temporary predisposing causes to disease, from the simple fact that they for the time being reduce the vital energies of the individual in a way that can be quite easily understood. In these circumstances, therefore, it would be most imprudent for anyone to expose himself to infection, of whatever nature; yet it cannot be doubted that privation of any description must necessarily play a most important part in causing the spread of epidemics, as persons suffering in this way undoubtedly afford ready and numerous victims to disease. While affirming this, I have no hesitation in stating that, barring exposure to infection, none of these will culminate in any specific disease beyond the natural effects of a reduction of the vital energies, which, of course, may proceed to such an extent as to cause death.

To illustrate the effects of paucity of food as a predisposing agent in the production of disease, it will be only necessary to bring forward as an example, "Relapsing," or "Famine Fever," as it is popularly designated. This disease, though within the memory of many now living, was a frequent visitor to

Ireland, has happily not been heard of for some years past. It will be remembered that its visits invariably added untold horrors to the privations and suffering consequent upon the numerous potato famines, which have, on many occasions, produced such disastrous results on the peasantry of that country. That it is a fever due to a septic organism is placed beyond all doubt by the fact that it is infectious, and there is every reason to suppose that the nature of the poison is closely allied to that of the *Botrytis Infestans* (which is the name of the potato disease microbe), just as the microbe of cholera morbus is similar, if not identical, in nature to the blight which attacks the rice plant. Indeed, it is highly probable that in these two diseases, distinct though they be, as in others, many microscopic organisms produce effects varying according to the environment in which they find a habitat.

We are also fully aware that the development and ravages of consumption are, without doubt, highly favoured by an insufficiency of food and clothing, when to these are superadded exposure to the inclemency of the weather on the one hand, or overcrowding in a badly ventilated dwelling on the other, hence it will not be diffi-

cult to realise how disastrous will be the effects upon the constitution, when these conditions obtain, which must necessarily follow.

Over-fatigue, either of mind or body, must also be recognised as a most important and potent predisposing cause of disease. Hence the duty, not only to themselves, but to their patients, of medical men and nurses especially, of directing their special attention to the necessity of being supplied with an abundance of nourishing food, and having the day so divided that they will be limited to a certain number of hours for duty, with sufficient time allowed for meals, rest, sleep, and outdoor exercise. It is also essential that at all times the bedroom of the invalid be thoroughly ventilated. It would be difficult, if not impossible, to estimate the number of victims who have succumbed to the neglect of these simple yet essential injunctions, which should at all times regulate the life, not only of the sick, but also of their attendants. Bear in mind the all-important fact which I have so frequently reiterated, disease can never attack a person whose health is unimpaired, and this enviable condition of perfect vigour can only be maintained by avoiding the contingencies I have referred to, and acting up to the

injunctions contained in the foregoing pages of this booklet.

It has often occurred to me as a most interesting circumstance that people who have been shipwrecked, and others who have been rescued from drowning, though for a long time exposed both to cold, wet, and frequently starvation to boot, so rarely develop any specific disease, unless indeed the seeds of this have been in the system before. We hear and read of numerous instances of this nature where sailors and others have been brought almost to death's door by cold and hunger, and yet, when properly attended to, appear to be nothing the worse after a few days have elapsed. On the other hand, if one with a rheumatic constitution (and this is generally associated with, if not entirely due to, constipation and its concomitants) were exposed in such circumstances, rheumatic fever would most probably be the outcome; yet it must be borne in mind that this would not have occurred as a *direct* result from the cold and exposure, had the system not previously been in a condition which favoured the development of this disease. If, on the other hand, any organ of the body has previously been the subject of disorder, this in all probability will

become accentuated, and even culminate in alarming developments of disease. The non-development of a specific microbic disease in these circumstances can only be explained by the fact that the air, as a rule, is pure in the neighbourhood where such accidents are liable to occur, and therefore it is devoid of any active organic life. It would be interesting yet painful to note what the effects would be if persons in such a predicament were conveyed to a badly ventilated and overcrowded cabin. One can have no hesitation in pronouncing that the results would be very different.

My readers may possibly be inclined to think that I am overstepping the exact limits of the title of this brochure in my endeavours to support my contentions, but as the deviations may prove of interest I trust they will pardon me, more especially as my illustrations only go to support what I have previously written.

I therefore would next draw attention to what is commonly called a cold in the head, but which, as we are fully aware, does not invariably limit its attack to that particular region, but is only too liable to spread beyond the sphere of its original location, and by a process of extension attack the windpipe, bronchial

tubes, and not unfrequently the lung tissue itself. Now we are all cognisant of the fact that this affection, in numberless instances, is the result of sitting in a draught of cold air. In the majority of cases its presence or invasion is announced by frequent attacks of sneezing, this being due to the mucous membrane of the nose having been rendered highly sensitive by the slight congestion which has taken place there. The sneezing constitutes nature's method of endeavouring to rid itself of any foreign particles that may come in contact with the mucous membrane. Now is it not a remarkable circumstance that sitting in a room where there is a draught of cold air playing upon a limited portion of the body, will, in many instances, result in a catarrh of the mucous membrane of the nose? On the other hand, a much more prolonged exposure of the whole body to cold, and even damp cold, will leave no effect whatever, although this inevitably produces an excited action of the mucous membrane of the nose during the period of exposure. Yet, if one remains outside and regains his warmth by gentle exercise, or going into the house puts on dry clothing and rapidly recovers his warmth, the effects will speedily subside. In the former

circumstances one would naturally infer that the danger of taking cold would be less than in the latter, but, as we know, such is not the case. The reason is to be found in the fact that the environments are totally different, yet the physiological effects are identical, that is to say, a temporary congestion of the mucous membrane, as indicated by an excessive secretion of mucus, is the result in both cases. (This congestion may, however, become so acute as to paralyse the secreting power of the mucous membrane altogether, when a dry burning sensation in the nostrils will be experienced, only to be relieved when the mucous membrane so far recovers itself as to be able to resume its power of secreting mucus, thus affording protection to the mucous membrane again). I may add that this catarrhal condition is produced entirely through the medium of a certain set of nerves called the sympathetic. These control by their action the calibre of the blood vessels, retaining them in a healthy state of contraction. If, however, cold plays for any length of time upon any portion of the body, the effects of this, through the nervous apparatus, are conveyed to the numerous centres of this system, called ganglia, which are distributed throughout the body,

and from which the sympathetic nerves derive their energy. These little brains (as they may aptly be termed), when acted upon in the manner I have indicated, become paralysed for the time being, hence the nerves emanating from them are rendered temporarily inert, with the result that the vessels being deprived of the nervous stimulus, which keeps them in their normal state of contraction, become distended for lack of this force, congestion of the vessels being the immediate sequence. Now this congestion, or overflow of blood to the part, will continue until the nerve centres recover themselves, when they will be enabled to resume their functions, again to supply the necessary stimulus to the blood vessels. As can be easily understood, this power can only be restored when the temporary shock which the cold has produced is removed, and as a rule, this occupies only a very short space of time. But in the meantime the mucous membrane has been weakened, which enables the microbes which produce catarrh to establish themselves upon the prostrated tissue. Having accomplished this, they will hold their position until the disease has run its course, unless they are immediately destroyed by the application of some antiseptic,

either in the form of vapour or liquid. Thus we perceive that catarrh of the mucous membrane of the nose is not due to the direct effects of cold, as is generally supposed, because in a pure atmosphere these would rapidly pass off, leaving no trace behind.

It is a well-known fact that the antiseptic treatment of wounds has had a most marvellous effect in reducing the number of fatal results. Antisepticism, however, really resolves itself into absolute cleanliness associated with thorough ventilation. This has been amply testified to by the almost complete disappearance of Hospital Gangrene, and the great reduction which has taken place in the number of cases of Erysipelas. In my younger days these two diseases were responsible for an enormous number of deaths, whereas at the present day they are as rarely met with now in Hospitals as they were common before, these satisfactory results being entirely due to the antiseptic treatment of wounds. It is a noteworthy fact that when a wound is inflicted the immediate neighbourhood of the injury is thereby prostrated, and in consequence of this becomes a fitting nidus for the germs of decomposition to take possession of. If, then, the wound can be kept free from these

germs until the parts have recovered themselves, union will take place with great rapidity, and it is by the strict attention that has been paid in recent years to this point that the death-rate after surgical operations has been so greatly reduced. Thirty years ago it was considered one of the greatest surgical risks to open the abdomen for the removal of tumours, and I remember when the death rate from such operations was certainly 90%. Now-a-days the very converse is the case, and a fatal result is the exception and not the rule. Indeed I know of one practitioner in Glasgow, who, although he has performed close upon six hundred operations within the past five and a half years, 133 of these necessitating the opening of the abdomen and the removal of tumours, some of which had attained considerable dimensions, yet has not had a single fatal result to record. He, however, has always taken the precaution not only of employing the most stringent antiseptic measures, but has, without a single exception, insisted upon the patient being the sole occupant of a commodious well-ventilated room, the result being that with very few exceptions the wound, often a very extensive one, has been completely healed within ten

days, when as a rule the stitches were removed.

If then cleanliness together with a thorough system of ventilation can act so beneficially in surgery, it will not be difficult to comprehend how very valuable these measures must prove in the prevention of disease and promoting health in every possible way.



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