

**The great white plague, consumption : cause, treatment, prevention / Willis Barnes.**

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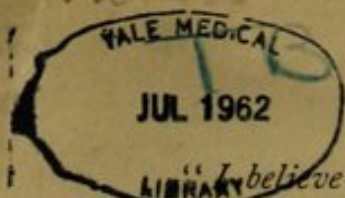
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*W. H. Brewer*

*"I believe that we shall one day rid the world of all diseases which are caused by germs."—M. PASTEUR.*



.. The ..

Great White Plague,

Consumption

CAUSE

TREATMENT

PREVENTION



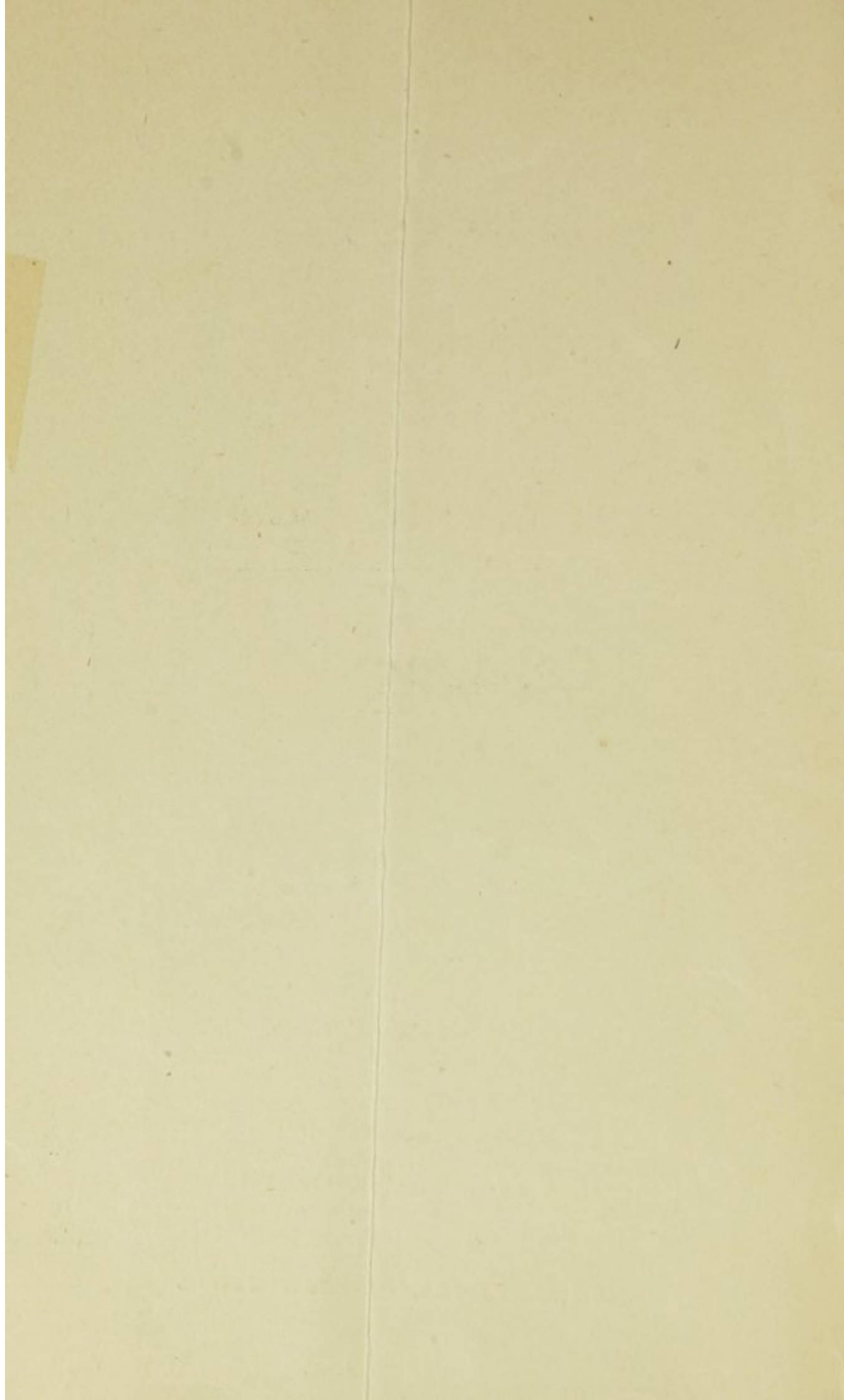
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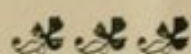
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*Feb 61*



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## PREFACE.

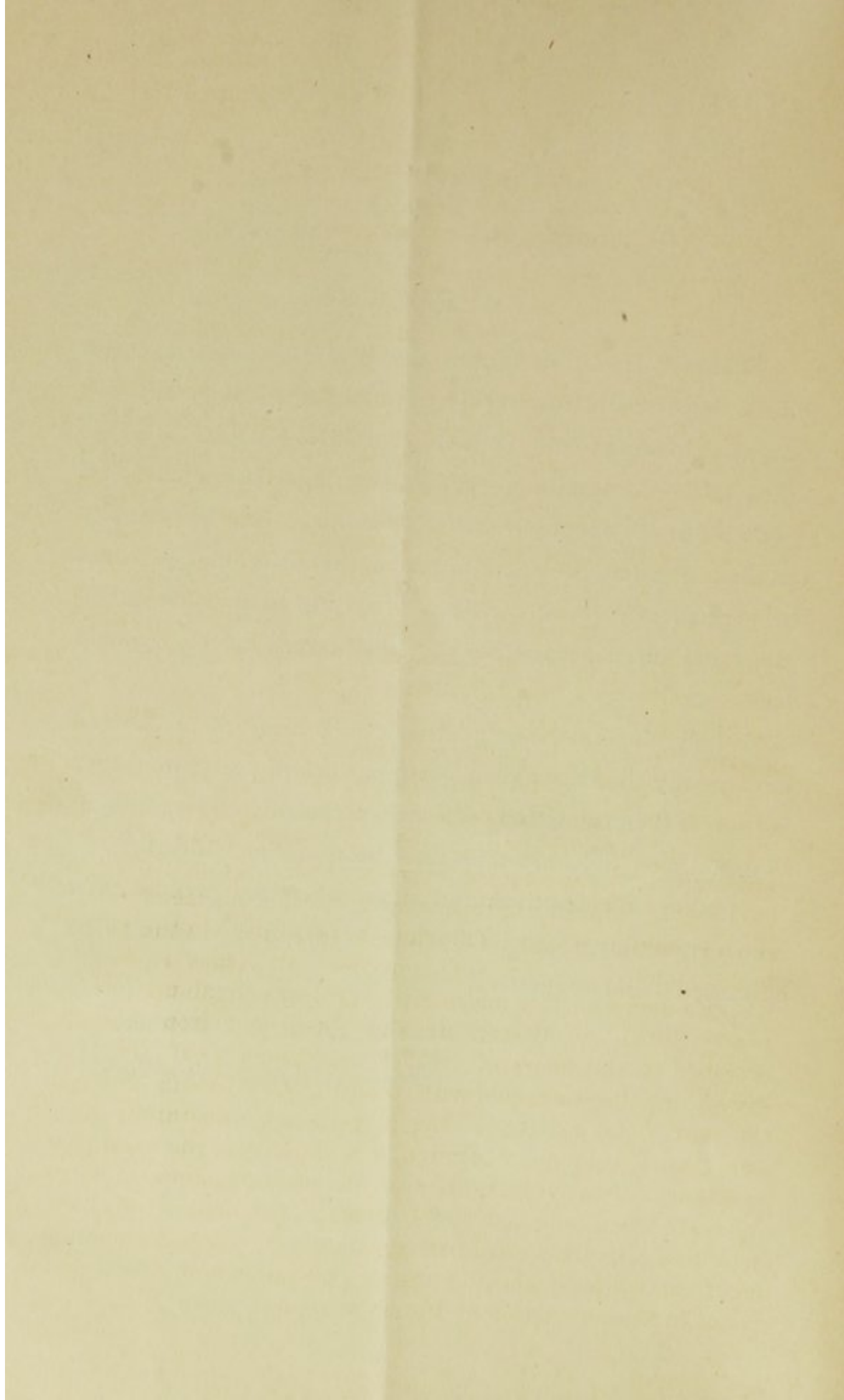
Boards of Health in various European Countries and also of the States and Cities in this country, have taken effective measures looking to the suppression of THE GREAT WHITE PLAGUE—Consumption—by stimulating individuals and communities to adopt *preventive measures*. This is the only method by which the death-rate from this dreadful disease can be permanently lowered as has been proven in such contagious and infective diseases, as small-pox, cholera, typhoid fever, etc.

If individuals and communities can be made to understand how greatly they can aid this benign work of prevention, then indeed, will consumption come under control, and thousands of useful men and women be saved from untimely death.

It is for Consumptives and those who may become their innocent victims, that this brochure is intended, it aims to be educational and suggestive.

WILLIS BARNES, Editor & Publisher.

West 103d Street, New York.





# THE GREAT WHITE PLAGUE.

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## CONSUMPTION.

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### THE ORGANS OF RESPIRATION.

We will not enter into great detail, but refer only to the chief organs which take part in that wonderful human action known as *breathing*—*inspiration* and *expiration* of air into and out of the lungs.

The most important of these organs which control breathing are the *lungs*, but on the way to them and before we consider their diseases, it will be interesting to notice in order the *Nose* and the nasal passages, the *Pharynx*, the *Larynx*, the *Trachea* or windpipe and the *Bronchi* or windpipes which lead directly into the lungs from the Trachea.

### THE NOSE.

The Nose is the organ of smelling, its sensitive nerves are provided that they may protect the lungs from the inspiration of deleterious odors and gases.

The healthful enjoyment of smelling requires that the mucous membrane be moist, and that the nasal passages shall not be obstructed, and that the inspired air may have free access to the breathing tract.

A special duty performed by the nasal passages is the preparation of the ingoing current of air so that it will not exercise an injurious influence upon the mucous membrane of the air passage below. This duty is performed in the following manner, viz. : (1) The inspired air comes in contact with the moist surface and particles of dust and minute foreign bodies adhere to it and are thus prevented from gaining entrance to the pharynx, trachea and lungs. (2) The inspired air being saturated with moisture while passing through the nose, does not render the parts below unnaturally dry. (3) When cold air is inspired it is warmed in the nasal passages and is, therefore, quite near the uniform temperature of the body when supplied to the lungs. The nose is the channel through which *all breathing* should be done, for mouth-breathing causes dryness of the air passage, which is a potent factor in the production of throat irritation.



### THE PHARYNX.

The Pharynx is the back part of the mouth beyond the soft palate ; it extends up behind this and back of the nose, and downward to the larynx.

A portion of the Pharynx may readily be seen on opening the mouth wide. Its mucous surface is filled with delicate blood vessels and it is very often the seat of congestion and inflammation, and is almost always involved when one is suffering from a "cold in the head." From its surface, when under the influence of a cold, there is thrown off a great deal of impure secretion, which may contain the germs of consumption which have been caught from the air breathed. Therefore this mucous when expectorated should be destroyed by heat, for when dried and mingled with the atmosphere it may be breathed into the throats and lungs of others. Should such persons be in a receptive condition, through weakness or ill-health, then they are likely to become victims of some form of throat or lung disease. This is why the sputum of those suffering with only ordinary catarrhal colds should not be expectorated upon the streets, or floors of public conveyances or houses.

### THE LARYNX.

The Larynx is the organ of voice. It is the beginning or mouth of the windpipe. It is a hard cartilaginous formation and may be readily felt in the front part of the neck. Its front and upper part forms what is known as "Adam's apple."

The Larynx contains the vocal chords, which are often so affected by cold or inflammation as to cause hoarseness and loss of voice. This condition is usually known as a sore throat and severe coughing is caused by the irritation of this organ.

Inflammation of the Larynx may be followed by impure secretions that are likely to affect the bronchial tubes and thus set up an irritation or inflammation that will render the lungs susceptible to the germs of Consumption.

### THE TRACHEA.

The Trachea or windpipe, is a cartilaginous round tube, about four and a half inches in length and three-quarters to an inch in diameter. It extends downward from the larynx, and separates into two branches or bronchi which enter the lungs.



The Trachea is often the seat of inflammation and its unhealthy secretions may influence lung tissue by causing irritations that not infrequently result in laying the foundation for lung Consumption.

#### THE BRONCHI.

The Bronchi are the two branches which turn off from the lower end of the trachea, and enter the right and left lung. These windpipes, like the trachea, are surrounded with cartilaginous rings which serve to hold them open for the free inspiration and expiration of air. As soon as the Bronchi enter the lungs they break up into five branches, three going to the three lobes or divisions of the right lung and two to the two divisions of the left lung. These branches again break off into hundreds of small branches or tubes and at the terminal of each minute tube there is an air cell or sack.

The disease known as Bronchitis is confined to one or both of the Bronchi; it is quite common, and is frequently a sequel to the disorder—a *cold*. It is acute and chronic. That is, a sudden chill may set up an inflammation which will run its course and be thrown off in a few days through the aid of proper medication and skilful nursing, but if this inflammation occurs again and again, then a weakness is created, and the disease becomes chronic. Under favorable circumstances this disorder remains dormant with only a hacking cough to indicate that the membrane is secreting an impure mucus, which is forced up and expectorated. Frequently the disorder breaks out into an alarming attack and the sufferer is compelled to retire to bed and receive the physician's care. This disease may linger on for years and yet it may be a quick destroyer of life; it is dependent mainly upon the power of resistance by the victim.

It is, of course, very necessary to health that the air passages above described be kept free from the impure mucus and that when it is expectorated it be destroyed by heat so that it may do no further harm by reason of the germ of consumption which may possibly have become incorporated with it from the air breathed. Let it be understood that there is but one air passage from the nose or mouth into the lungs, and that the pharynx, larynx, trachea and bronchi are but arbitrary divisions of the one tube.



## TAKING COLD.

As a rule, it is said that taking cold follows a low state of the temperature. This is not correct. When the atmosphere is very cold but dry and clear, we seldom take cold. On the other hand, when the air is loaded with moisture, and a damp, chilly, penetrating atmosphere exists, with a temperature of  $35^{\circ}$  to  $45^{\circ}$ , then the danger is greatest. Indeed, "taking cold" may be experienced at any season. Spring and Fall are favorable, and Summer colds are not infrequent.

"Taking cold" is prevalent among all classes of society; and if this disorder were not the forerunner of possibly more serious illness which is likely to jeopardize life, this apparently minor disorder might be briefly passed with only a bare description and a few words of advice as to avoidance and cure. But "taking cold" is not a matter of such small importance as to be thus lightly disposed of. It may lead to unnatural conditions of the body, which are likely to tax the skill of scientific medicine in the effort to recover health.

Consumption of the lungs may begin from various pre-disposing causes—that is, these causes prepare the tissue of the lungs for the reception of, it may be, the bacillus of tuberculosis, or for the development of an inflammation which passes into a state of chronic illness, from which impure mucus is thrown off and wasting of lung tissue follows. One of the prominent pre-disposing causes is "taking cold," and it may be well to learn how to avoid this one cause.

### CAUSES OF A COLD

The natural temperature of the body is maintained by correct nutrition and clothing; therefore, if from absence of proper food or clothing, bodily heat is allowed to fall, the susceptibility to chilling is greater, and "taking cold" is almost sure to follow. On the other hand, if when under the influence of natural bodily heat, a draught of cold, damp air is permitted to strike any part of the body, thus chilling it at that point, equilibrium of circulation and heat are destroyed for a brief period, and if not quickly restored, a cold will result, manifesting itself in the head or some other part of the body. A draught of air is, perhaps, the most frequent cause of taking cold, and this is mainly, if not wholly, due to unequal



chilling. Even a person in poor health, can go into the open air with impunity, when all parts of the body are equally exposed, but on the other hand, a person with robust health and quite perfect resistance cannot hope to avoid taking cold if they subject a part only of the body to the draught of chilling air.

Exposure to a damp atmosphere with thin shoes or insufficient clothing often results in a chill, which soon develops into a cold.

Of course, we know that human beings become somewhat inured to exposure. This is, no doubt, why women with thin shoes, uncovered heads, shoulders and arms, and children with thinly clad legs do not seem to take cold from these causes. Yet a careful reading of the cases laid down in medical literature lead to but one conclusion, that bare neck and short sleeves at the opera and dances, thin shoes, and the absence of sleeves from women's underwear, have proven a most prolific cause of pneumonia, bronchitis, chronic catarrh and consumption, in climates where the temperature is changeable, and moist, chilling winds are prevalent. These unnatural exposures of the person are at all times dangerous and should, therefore, be avoided as one of the prolific causes of "taking cold."

It seems strange that this partial exposure should develop an inflammation at some other part of the body remote from the point of attack by the chilling draught; this can only be explained by asserting that the cold is developed at the weakest spot.

A cold draught on the back may bring on an attack of rheumatism, or if one has weak lungs, inflammation of these delicate organs, pneumonia is apt to follow; or if the eyes, nose, stomach, bowels, kidneys, etc., are physically weak, that is if nutrition and vital status is below par, then these are the points at which the cold will no doubt show itself.

In the majority of cases an exposure to chill results in an acute inflammation of the membrane which lines the nose and nasal passage into the throat, and the bronchial tubes into the lungs. This inflammation is commonly understood to be a cold in the head and sore throat, and the next question presented is :

Why do colds more often develop in the nasal passage and



throat? The fact exists that most people have a mild chronic catarrhal inflammation, which is perhaps hardly noticed, until, when a cold is contracted, this latent inflammation develops into an active disease. The reason why this mild chronic inflammation exists is not difficult to discover, for impure, dust-laden air contains irritating particles that become imbedded in the mucous membrane and cause the disorder. In the dust-laden factories, work-shops, etc., and in the air of the household on "sweeping day," may be found causes of nasal mucous membrane inflammation, which only await favorable influences through chill or draught to develop into catarrh or more serious congestion of the air passages, even of the lungs themselves.

Snuff taking and tobacco smoking are also fruitful causes of catarrhal inflammation of the nose and pharynx.

Alcoholic liquors produce a mild or aggravated form of inflammation over the entire body in proportion to the quantity used, and when a chill occurs this inflammation develops at the weakest point (which is very frequently the air passages), and passes on to congestion, and the secretion of that impure mucous so well known in chronic nasal or throat catarrh. It will be understood that most people having a mild chronic catarrh, which producing as it does, a weakened condition of the mucous membrane and tissues of the nose, and nasal passage into the throat, and sympathetically the bronchial passages into the lungs, make these parts the weakest of the whole human organism. Hence, when the chill strikes the body, its bad influence develops into a head or throat cold, or some other aggravated form of inflammation lower down.

This is why a cold seems to have such a marked disposition to select special parts for its development. *It naturally seeks the weakest spot, the point from which the least resistance is exercised.*

Consumption does not always follow, because the person has suffered from a cold, but because the inflammation it causes has weakened the tissues and rendered them susceptible to the poison of the greater disease if its germ be present in the community; and where is there a community that has not this poison always present, awaiting only the favorable condi-



tion to enter in and kill. Thus the possibility of a dangerous disease may be caused by the neglect of a minor disorder.

### TREATMENT OF COLDS.

Can a cold be cured? One might suppose it was the easiest of problems to solve, if the newspaper advertisements of patent medicine venders be true. But the truth is, that a common cold in the head when once established cannot be cured until it has had its days of limit, which varies from two to ten days, dependent mainly on the ability of each individual to throw it off. A cold can be lessened in severity and also the duration shortened by medical treatment, and often by simple home remedies.

It is well to reduce the usual quantity of food so that the inflammation will not be stimulated; milk, starchy foods and fruits are best. It is also important to cleanse the nasal passages with douches of warm water. If possible, go to bed for twenty-four hours and stay in the house for two or three days. This loss of time is true economy in the end. It is important to keep warm; that is, perfectly comfortable, for a chilly feeling indicates that the disorder is increasing, and the sufferer may be down in a day or two with serious congestion of the bronchial tubes, or even of the lungs.

In the more aggravated forms of the disorders resulting from colds, such as bronchitis, or severe catarrh, nutrition is important; they are wasting diseases and create a form of starvation; therefore, a good deal of attention should be given to diet, and the foods selected should contain the largest percentage of nutrition and such as will be quickly appropriated in the body for the renewal of waste. The grain foods, scalded milk, eggs and hashed juicy beef are the best, whole wheat bread is ten times better than fine white bread. Cod liver oil when accepted by the stomach is very serviceable in bronchitis and chronic catarrh, as it serves the purpose of a heat and resistance creator and aids in restoring the tissue waste which is incidental to the disease.

Breathing pure air has a marked influence for good in these disorders, and it should be taken by deep and full inspirations.

Alcoholic stimulants are dangerous, for they are first



excitants of heart action, but reactively depression occurs and more harm than good is the result.

It is not safe to take liberties with these disorders by indulging in self-medication. A physician, by reason of long experience, is the best one to set up a defence against these enemies of health, and it is all the more important that sufferers should have this care, for the physician not only treats the illness according to the most intelligent and well-tried methods, but is able to advise the patient and nurse as to the destruction of impure secretions which may create disease in others, or aggravate the disease in the sufferers.



## CONSUMPTION.

Consumption causes the largest per cent. of all deaths and it is still the most difficult disease to conquer, but skilful treatment under modern medical science, has produced a favorable and growing percentage of cures. The rate of mortality will surely decrease when the preventive methods are fully practiced, which are now advised by those scientists who have given the disease special study, and in this warfare against the disease every one can lend a hand.

It will no doubt serve our purpose best, if the anatomy of the lungs be briefly described and the part which they play in the economy of human life be carefully considered.

### ANATOMY OF THE LUNGS.

The Lungs are the organs of respiration; they are placed on either side of the chest cavity and are separated from each other by the heart.

The top of the lungs is tapering and extend into the root of the neck about an inch to an inch and a half above the level of the first rib. The bottom of the lungs is broad and rests upon the diaphragm—the muscular fold which controls the expansion and contraction of the chest and divides this cavity from the abdominal cavity.

The external surface of the lungs is smooth and corresponds to the form of the chest cavity, being deeper behind than in front.

The right lung is divided by deep fissures into two large lobes or divisions, and one small one. The left lung is divided into two large lobes and is smaller than the right, as part of the chest cavity on the left side is occupied by the heart which inclines from the middle line of the body to the left.

The internal structure of the lungs resemble a short bushy tree, the smaller branches of which are crowded with delicate round leaves. Imagine the trunk of the bush (the trachea) all the branches (the bronchi) and all the leaves (air cells) to be hollow, and we get a fair impression as to how the interior of the lungs would appear if laid bare to the eye. These branches of the bronchi finally run down into very delicate hair-like tubes and minute air cells composed of a membrane



so web-like and delicate in texture, that when the atmosphere is drawn into the tubes and cells, the oxygen of the air passes through the membrane into the blood vessels which are everywhere present in the lungs. These bronchi-tubes and air cells are held in place by a connective tissue made up of fibrous material, so closely bound together that the lungs present to the eye externally an almost solid body. Throughout all of the lung tissue there are blood vessels and lymphatic ducts. Thus every precaution has been made to supply the lungs with nutrition and to remove from them the waste incident to wear and tear. The lungs not only perform an important service for themselves, but more importantly than any other organ, they perform a service to the whole body, which, when interrupted entirely, produces immediate death, or when partially interfered with by disease, cause disorder throughout the entire system. The lungs perform a wonderful service in the economy of human life. They take in the oxygen contained in the atmosphere and pass it into the blood, where it performs a two-fold service. It purifies the dark venous blood by converting it into red arterial blood which in turn carries the oxygen to all parts of the body, where coming in contact with the carbon of blood, heat is created, and carbon dioxide results from the combustion, which is taken up by the venous blood circulation and carried back to the lungs from whence it is breathed out as carbonic acid gas.

The lungs also regulate in a measure the circulation of the blood and the heart's action. But the most impressive act performed by the lungs, begins at the moment of birth and continues until the eyes are closed in death; this is inspiration and expiration of air. Deprivation of food may exist for many days, certain portions of the body may be removed and yet life will go on; but deprive the lungs of air, but for a few moments, and death will ensue; or supply the lungs with impure air in which the percentage of oxygen is less than it should be and death will quickly follow. That health may be sustained and life continued at the best standard, it is an important necessity at all times that the strength of the lungs and their natural action be fully maintained. The absence of this standard is why disease of the lungs causes such a very large percentage of all deaths.



The act of respiration also controls another most important element in human life, viz.: Regulation of abdominal breathing, which is so necessary to the natural action of all the abdominal organs—the stomach, intestines, liver, kidneys, etc.

With these facts before us we must appreciate the vital importance of a healthy state of the breathing apparatus and be deeply impressed with the general disaster which takes place when even a trifling disorder occurs.

Lessen the power of the lungs to perform their function of taking up oxygen and at once all the organs of life suffer a proportionate arrest of natural function and disease finds an easy victim in one so unfortunately affected.

## DISEASES OF THE LUNGS.

Disease may commence in any part of the lung tissue. It may be bronchitis, pleurisy (inflammation of the pleura, the membrane which covers the lungs), or the inflammation known as pneumonia, all caused by cold, or often as the sequel to other diseased states of the body.

The disorder may be of a degenerative type from malnutrition and be located in the lymphatic ducts and glands external to the bronchial tubes and air cells, which ulcerate and break down; this is called acute or rapid consumption which is very fatal. Then again the lung tissue may become ulcerated and slowly throw off purulent matter, and apparently heal of its own accord, only to break out again in the old spot, or at some new place; this is known as old fashioned, prolonged consumption. There are various phases of lung disease, the symptoms of which are at first not easily recognized, and the classification consequently difficult. This is why any disorder of the lungs must be regarded very earnestly and advice quickly sought if health and life are to be preserved.

### THE DISEASE—CONSUMPTION.

The symptoms or indications that the disease, consumption, has set up its wasting warfare in the lungs are not always exactly alike with each victim. Soreness, pain, a hacking cough, at times a bright hectic flush on the cheek, fever, night sweats, the expectoration of catarrhal mucus, which seems to come from low down in the throat; pain following an effort at full expansion of the lungs and waste of bodily tissue, indicated by loss of weight, are all guide posts pointing to the dangerous road. It is upon the appearance of any one of these symptoms that the sufferer should at once seek aid from the very best medical practitioners. The disease may be arrested at this time, suffering avoided, and a life saved. *It is the neglect by sufferers at this time, or their effort at self cure by drug store medication that carries so many into the position of well developed consumption, from which there is, as a rule, no return to health. It is for this reason that we urge those who suspect they have any disorder in their lungs, to place themselves under a physician's*



*care, for their own life will be prolonged, and they will be put upon their guard as to other lives, which they may jeopardize by the poisonous sputa that comes from their diseased lungs.*

### CAUSES OF CONSUMPTION.

Several causes are given for the well-defined disease—lung consumption ; yet physicians are not entirely in accord as to the most potent or certain cause. The one cause which has been quite universally accepted as a leading one, is that live microscopic germs, known as the bacilli of tuberculosis, are breathed into the lungs from the air, and if the lung-tissue is too weak to throw off the germ, or if there be a good receptive condition present by reason of bad nutrition, active or latent congestion or inflammation, that then the bacilli begin the work of destruction, by creating suppuration and wasting of lung tissue. In place of the tissue destroyed the bacilli deposit a mass of refuse matter which blocks up the bronchi and air cells, destroying their functional action, and thus the dreadful work of disease goes on until some potent remedy can be carried to the point of attack and the destroyer removed ; or, failing to secure this, death releases the victim from suffering, sooner or later, according to the power he or she may have to resist the disease.

It is asserted by scientists that the bacilli of tuberculosis may be taken into the body in food, more certainly in milk, for the disease is quite prevalent among dairy cows. The bacilli may also exist in the meat of diseased cattle ; for this reason meats and milk should always be subjected to a high degree of heat before being used as food.

A disorder of the lungs rendering them susceptible to consumption may occur from imperfect heart action, whereby irregular blood circulation results.

Disorder of the kidneys or of the liver delays the removal of impure waste matter from the blood, and this throws upon the lungs an unnatural amount of work, and the tissue at the same time not being properly nourished the vital status of the lungs is lowered and they are thus rendered susceptible to disease.

Then, again, the skin may not be performing its function fully, and this throws upon the lungs an extra duty—purifying



the blood by the removal of effete gases. This has a tendency to weaken the tissue and create the receptive state which make the origination of lung consumption possible.

Another great predisposing cause of consumption—and many physicians think the most frequent—is *mal-nutrition*, that is, the body is not properly or naturally well fed, and consequently the vital power of resistance is lowered and degeneration of lung tissue takes place. Mal-nutrition occurs from impure water, impure air, bad food, insufficient clothing, and exposure to cold and dampness, or from the failure of natural action of some other organ of the body, and last, but not least, the use of intoxicants.

The lungs being in this weakened state are more sensitive to irritating influences and are not able to resist causes of diseases, which under more favorable conditions would have no deleterious effect.

The habit of tight lacing of corsets, or wearing clothing which constricts the full expansion of the lungs, causes the tubes and cells to collapse, congestion follows, inflammation is set up, and a receptive state is formed for the beginning of consumption.

A great deal of lung disease is found among store clerks, book-keepers, students, and teachers, indeed, among all classes of work people whose labor over desks, work benches and counters requires leaning forward, thus constricting the chest walls and preventing the full expansion of the lungs.

Other predisposing causes result from breathing into the lungs poisonous gases, and irritating metal or mineral dust from roads, streets or shops.

Consumption may also follow any other disease which lowers the vital status of the whole body, the lungs included; they thus become receptive to the bacilli of tuberculosis or break down through inflammation and ulceration from mal-nutrition, as already stated.

Consumption is not directly inherited, but a consumptive father or mother frequently stamp upon their children a weakened body, which is thus rendered susceptible to any passing disease, especially consumption, because their powers of resistance are below par.

A mother suffering with consumption may inflict upon



her unborn child the germ of tuberculosis through her blood circulation; or she may infect the child through her milk in nursing or by contact in kissing.

The tuberculous cow is believed by a large number of scientists to be one of the most prolific causes of consumption. First by secreting the bacilli in the milk, and second by depositing this disease germ in her sputa upon stable floors, mangers and fields where it dries and floats in the atmosphere to be breathed into other susceptible lungs, both of animals and human beings. This is no doubt the one most prolific cause of consumption among farming and village communities. Here is a class of persons who exist under what would seem to be the most healthful conditions, pure air, pure water and fresh food, yet the mortality from consumption in country districts is quite large. Of course it is also true that among these people are found other disorders which render them receptive to the greater disease. Yet in view of all this, country life as compared with city life for those of weak physical organization, is by all odds the safest and most likely to promote a long healthful life.

Every state government owes a duty to the people which should be much more energetically performed, and that is the making of appropriations for the suppression of tuberculosis by killing the diseased cattle, and paying their owners a full value compensation for the loss. In this way the disease can be removed from the possibility of causing infection within, not only the surroundings of the cattle, but at remote places where the milk of these animals is distributed to innocent, ignorant consumers.



## TREATMENT.

There has not yet been found a medicinal specific for the absolute cure of consumption, but that a great many cases of this disease are cured goes without saying. Each case, however, must have special and peculiar care, and the physician who may be quite successful with one patient, may be entirely unsuccessful with the next one, if he should apply exactly the same treatment. The peculiarity of each individual must govern.

This is the reason why drug store, patent medicine or secret remedies cannot be successful; they do not as a rule cure one case in a thousand.

There can be no doubt but that the *food cure* for consumption is by all odds the best, when taken in conjunction with special care of the body and its surroundings and under the direction of a competent physician.

Consider for a moment the process and incidental circumstances accompanying natural and unaided recovery from consumption, the result of increased resistance to the disease the loss of which constitutes the main factor in producing susceptibility and we must conclude that the successful employment of a specific remedy would meet so many conflicting influences in our complex conditions of society that its use would be exceedingly doubtful as a means of raising bodily vigor, or producing a permanent immunity, without the addition of the more natural and rational factors involved in an open-air life, combined with good nutritious food, for the latter more surely accomplish the cure of consumption than any remedies yet known, though such as now command the regard of the medical profession do surely produce satisfactory results when skilfully applied.

In this respect we would suggest that medicated sprays and vapors inhaled into the lower air passages, as a rule, prove very benign, in that they cleanse the membrane by stimulating the exudation of impure secretion.

The disease from start to finish is a destroyer of lung tissue, and inaugurates a form of starvation which affects every part of the body, therefore skilful nutrition must be used to replace the loss and the ever present question is, what food



will best serve this purpose and create that resistance to the disease which will overcome its ravages and thus help the victim to throw it off. It is imperative that every care be taken to cultivate a system of eating that will at all times be co-operative with appetite, and to successfully accomplish this it is better to eat small quantities of food frequently than to overload the digestive organs at one time. It is quite permissible that non-alcoholic tonics be used to promote appetite and that medicinal aids be used to promote digestion. A careful regard should be given to the removal of refuse from the system, which if too long retained will prove a serious menace to health, and lower many degrees the power of resistance to disease.

We urge upon those who have a weak body, contracted chest, weak lungs, or any disorder of the air passages, that they at once begin the exercise of deep breathing, the full expansion of all the bronchial tubes and air cells, thus carrying as fully as possible into the body the oxygen of the air, which is a life promoter and preserver. Through this exercise the lungs are brought into activity, all natural organic action is promoted through prompt appropriation of nutrition and stimulated blood circulation. Of course the air thus breathed should be as pure as can be had. To accomplish deep breathing naturally, the body and head must be held erect, the shoulders thrown well back, and the clothing worn so loose as not in the slightest degree to impede the full expansion of the chest walls. Mild exercise such as walking, ball throwing, or use of very light clubs, aids very greatly the natural act.

The next step is the selection of the best tissue building foods. Hashed meats, eggs, fish, poultry, whole wheat bread and milk are standard nutrients. But remember that milk is always in its natural state likely to be impure and dangerous for the sick, for this reason it should *always* be scalded; this will kill any disease germs it may contain. Of the cereals—corn meal, cracked wheat, oatmeal and rice are the best. Thick soups are very nourishing. Of vegetables, beans of all kinds are the best. Stewed fruits and nuts are very serviceable. Butter, cream, marrow, suet and sweet oil are very nourishing, as they create heat, energy and resistance. Sugars and fruit syrups also serve a good purpose.



Great care should be exercised, however, to avoid articles of food that are not easily digested, for the organs of digestion of one suffering from incipient or well developed consumption sympathize with the cause of the illness and are therefore much disordered, and for this reason must be treated with more than ordinary tender regard. It is also quite important that frequent changes of food be made for the appetite is very sensitive and will not bear monotony.

The best drink for the consumptive is hot water, three glasses per day is the lowest limit. The water is a cleanser of the diseased tissues and the whole body as well; it stimulates excretion of effete matter, by way of the skin, kidneys and bowels. Hot water greatly aids the loosening of the exudation from diseased tissue and makes the effort of coughing and expectoration much easier. Avoid coughing as much as possible, for the effort is very exhausting; when the paroxysm comes on, resort to hot water as soon as possible. It is always quite a relief to the consumptive to use a hot water gargle the first thing in the morning before eating, and by sipping the water, the collected mucus will be cleansed from the air passages and thus prevent vomiting of food from severe coughing. This same practice on retiring will most likely secure a good night's rest. The water should be as hot as can be borne.

It is very important that consumptives live in the sunshine and air, and sleep in a room exposed to the sun. Protect the body from chill by wearing woolen clothing and breathe through a handkerchief or veil, then no danger will come from exposure to the air. The special reason for sending patients to a warm climate is that they may live out of doors, and for sending them to a high, dry climate, that they may breathe pure, light, dry air, that will fill every tube and air cell without great effort, so that the oxygen of the air may burn out the disease and promote life.

There is one great objection which may be urged against this wide spread idea that consumptives must go to some remote place from their homes so that they may have, as it is said, a more equable climate. If these sufferers could take with them their families and not break up home ties and the comfort of home nursing, the change would in many cases prove to be a good one, but let it be fully understood that only



a very few of these patients can ever return with safety to a more rigorous climate. Of all the vast number of consumptives in the Eastern and Middle States, only a very small percentage have gone to the milder climates, and only a very few of these have regained their health. While those who have stayed on and fought the disease surrounded by home comforts and met the vagaries of a changeable climate by nutrition and clothing have had on the whole a more endurable life. Our suggestion to all sufferers is to stay at that place where they can have the best nursing, home surroundings and the mental stimulus of friendly sympathy and encouragement.

Then again, of the vast number of consumptives there is only a small percentage who can afford to give up work, much less leave their places of abode and go wherever the doctor says they ought to. To such persons the fight for life is a hard one, no doubt, but it is easier to fight at home than away in some strange place.

To all consumptives, whether in the city, town or country, we give this advice first of all, do not waste money on drugs that are recommended by friends, or by those ignorant of the character of the disease. Go at once to a physician and loyally follow his advice. Do not get discouraged and give up to the enemy, keep at work, go out every day, (weather permitting), keep the mind and body occupied and do not fail to have some mild exercise. Half the battle against consumption is won by trying to live, and in this regard it is well to cultivate every advantage in favor of life; thus the powers of resistance are stimulated. Nothing aids so much as keeping the mind constantly in favor of living, this more than anything else helps your physician and aids treatment, whatever it may be.

There is no disease which affects the mind so sensitively as consumption. There is almost a daily contest between hope and discouragement, but it is better not to allow these extremes of feeling. Cultivate a happy medium and endeavor to direct the thoughts into a channel that will be uniform for each day, the mind will thus exercise a very good influence over the body, which will surely result in a better physical condition, indeed often to the successful throwing off of the disease. As an aid to this mental influence, it must not be forgotten that healthful physical habits and good sanitary



surroundings should be cultivated and systematically practiced. It is also beneficial to avoid conversations about disease and to cultivate healthy associates rather than those who are ill. This is why sanitarium life for consumptives is not always conducive to recovery.

Sleep is a great medicine for consumptives, and getting over-tired must be avoided; therefore, cultivate the habit of taking frequent rests. What a boon, what a blessing is sleep! Let this charmer-away of care have full sway, for the soothing influence can hardly be appreciated. Sleep makes us forget life's trials, it shuts out suffering, sorrow and sadness. Power comes through repose. If sleep is imperative, give way to it; it works wonders in reinforcing physical nature and thus creates healing, therefore, if you are sick cultivate sleep. "Kind nature's sweet restorer, balmy sleep."

*But just here let us record a word of warning. No greater harm can come to invalids than the cultivation of a habit of producing sleep through the influence of drugs. All narcotics are poisons and poison in the human system creates a craving for itself, hence, the danger of its use.*

If patients have night sweats, the night-dress and sheets should be changed daily and cleansed by being boiled in water. Patients should also have a daily sponge bath with tepid water and soap; this is good nursing and proves very refreshing.

Stores or work shops should be kept as clean as possible. See that there is good ventilation and that the water closet service is clean and good. If these points are not attended to by employers, a word of complaint to the Board of Health, will set the matter right. Do not be afraid to make the complaint, as the Board of Health does not reveal the name of the complainant.

During the past year several publishers in our large cities have put upon the market admirable cook books which contain very extended details covering the question of proper food for invalids. We advise all consumptive patients to possess themselves of one of these books, which will greatly aid the most effective of all treatments—*skilful nutrition*.



## PREVENTION OF CONSUMPTION.

*After all, the greatest service which human beings can perform for themselves or confer upon others, is the prevention of disease.*

In these modern times the medical profession has come to regard the old saying that "Prevention is better than cure" as a most important part of true medical science. So much do they regard prevention as good practice that a special department of study in the schools has now been inaugurated under the name of "*Preventive Medicine.*"

This simply means, that through hygiene, sanitation and eternal vigilance as to correct and natural ways of living, disease may be avoided, health preserved and life prolonged. Health is just as infectious as disease, if the conditions are made equally favorable.

Of all diseases *Consumption* should be brought under the control of *prevention*, for in no other way can its ravages be so quickly stopped. In the accomplishment of this benign purpose, human beings, individually and collectively, in every community can perform a most useful service by the dissemination of correct information through educational influences.

This fact, however, has not been known or appreciated very long, for it was in 1880 only, that Conheim, a German scientist, asserted that the disease which had long been known as *tuberculosis* was infectious—that one person could be infected by another through the tuberculous matter exuded from diseased tissue.

In 1882, Robert Koch, the distinguished German chemist, discovered in the pus of tuberculous sores, and in the sputum or mucus expectorated by consumptives, a living germ so small that when it is magnified one thousand times it is only one-eighth of an inch in length. This Professor Koch named the "bacillus" or germ of the disease. This disease—*tuberculosis*—is recognized by the formation in various tissues of the body of nodules—small knots or lumps which in appearance look like hard, white cheese matter.

*Tuberculosis* may develop as a disease in the stomach, intestines, liver or other organs of the body, or even in the bones. It may be seen in the form of *scrofulous* disease in the



glands about the neck, and not infrequently is seen as suppurating sores on the body.

It will, therefore, be understood that a tuberculous sore which evades matter or pus, will have in it the live germ or bacillus, so that if this germ should gain access to another human or animal body and find therein a favorable or receptive spot it will again set up its work of destruction.

The favorite place within the body of human beings and lower animals—the cow more frequently than any other—which is selected by this germ, or bacillus, is the lungs, and the reason for this lies in the fact that when the pus or matter passes from a tuberculous sore, whether from the bowels or from the lungs in the sputa coughed up, and it falls upon any article of clothing, or household furniture, or on the ground, it dries into powder and again mingles with the atmosphere. The germ now being in the atmosphere is readily breathed into the human air passages and thus passes into the lungs, which are composed of that soft, delicate tissue as said before in which the germ prefers, by natural selection, to feed and reproduce itself, which it does by the millions in an incredibly short space of time.

*Now that we understand how tuberculosis becomes infectious, we can readily see that prevention of the disease is entirely dependent upon the careful and ever vigilant destruction of the cause—the germs or bacilli which are cast off from the diseased tissue.*

How shall this be accomplished most successfully?

Inasmuch as the successful arrest and prevention of tuberculosis depends upon its early detection, no means to accomplish this should be neglected, and, therefore, the offer of Boards of Health to examine the sputa of those who suspect they have the disease must become a valuable aid in prevention. The detection of the germ may be made by microscopical examination and by other means well understood in the chemical laboratory.

In the case of excretions from body sores or from the bowels, the matter should at once be covered by a strong solution of carbolic acid and thrown into the sewers where it can never become dry.

When the exudation comes from the lungs or air passages



the sputa should be received in paper spittoons that can be burned, or in a china receptacle in which *carbolic acid*, *citric acid sublimate* or some other germ destroying chemical can be poured and from this the matter should be thrown into the sewers or fire. If the sputa is received on old rags or cloths, they should be burned before it is allowed to dry. Great care must be exercised to prevent the depositing of the sputa or other exudation on the bedclothes where it will dry and thus allow the germ to return into the air and be breathed in again by the sufferer, or by other persons, who may be in attendance.

It is through this vigilant destruction, this action on behalf of preventive measures that physicians and Boards of Health hope to suppress this awful disease and reduce the large number of deaths, which yearly rob the community of useful citizens, and which brings sorrow into so many homes.

In carrying out this work of prevention no one can do such effective work as the unfortunate victims and those in whose care they may be.

As a precaution everything about the consumptive should be scrupulously clean and to accomplish this with the least amount of labor, it is a good plan to remove the carpet from the bedroom floor and use only one or two rugs or mats. Curtains should be removed and shades only used at the windows. Then take away every other article (consistent with the comfort of the sufferer) that may become a receptacle for dust.

In cleaning the room, floor rugs should before being beaten be wiped off with a damp cloth, which should afterwards be plunged in boiling water. The floor or walls must not be swept, but wiped off with a damp cloth. The dust on other articles must also be wiped with a damp cloth and the cloth boiled. A dusting brush or feather duster, or even broom sweeping in a room or house where any one is ill with an infectious or contagious disease becomes the medium whereby the disease is communicated from the diseased person to those who are in health, and thus it is that epidemics are created.

When the disease reaches that point where the expectorations of sputa become ropy or sticky, some of it is likely to adhere to the mouth or pharynx and be swallowed with the food or saliva. This will cause disease of the stomach or intes-



tines in the form of catarrh, which will interfere greatly with digestion. Indeed from this cause the bacilli of the disease may set up tuberculosis in the digestive organs and thus seal the fate of the sufferer. For this reason, great care should be exercised in washing the mouth and throat with hot water after every paroxysm of coughing, so that the great danger here referred to may be avoided. It is also important to wash out the stomach and intestines by drinking a goodly quantity of hot water.

If a consumptive uses a handkerchief to receive his sputa it should be plunged in boiling hot water before the sputa is dry, thus infection is prevented.

When out of doors, or where a spit cup cannot be used, use cheap handkerchiefs or paper, which should be burned on returning to the house.

Great care should be taken that the hands, face, and clothing or bedclothes, do not become smeared with the sputa. If this happens, the parts which have thus become soiled should be cleansed at once with hot water and soap.

Avoid kissing, especially on the mouth, through the deprivation of this social custom or mark of affection, the sufferer will have the reward of knowing that he or she protects those near and dear to them from a dangerous disease.

Consumptives should not hold positions where they are compelled to handle the food or wearing apparel of others, or which brings them in close relations with others. If the exigencies of life necessitate the holding of such positions, every possible care must be taken to prevent infection from sputa getting upon the hands, or upon the articles handled.

At the family table the consumptives should have their own eating and drinking utensils. These should be washed separately.

The bedclothes and linen of a consumptive, or a person suffering from any other form of tuberculosis, should be thoroughly boiled before washing, and then washed separately.

I think we now thoroughly understand how consumption may be made infectious by those suffering from the disease, and how the infection can be avoided, and knowing this we must appreciate that what is required is eternal vigilance in carrying out the suggestions presented.



We have been considering the subject of prevention from the standpoint of actual tuberculous disease in its relationship to healthy persons, or those who may be in a receptive condition, through the physical weakness which comes from "taking cold," or from any other disease which may afflict the body, but our consideration of prevention would not be complete if we did not outline a few collateral dangers which may seem remote, but yet have in them that weak spot through which later on the enemy may penetrate, even up to the citadel of health, and destroy a precious life. We will not enter into details, but simply refer to these dangers by briefly referring to them as follows :

Tuberculosis is no longer regarded as an inherited disease, but it is well established that consumptives, or even persons with a weak physical organization which has a tendency towards, or which is susceptible to disease, should not become the father or mother of children, for thereby they may entail upon their off-spring a lifetime suffering from a weak physical organization which is ever sensitive to any passing infective disease. Why should human beings thus put a miserable life upon others through the mere gratification of a selfish passion? This may seem extreme, but those who assume to be guardians of the public health must endeavor in every possible way to educate the human race to be careful in the selection of wives and husbands.

Men and women contemplating marriage should be carefully examined by competent scientists who make physical disease a study, and be bound by the verdict. Thus a life of sorrow may be avoided by those who are about to marry, and their possible progeny will be saved from a yet more unhappy state.

If such rules as are carefully followed in the mating of the lower animals were applied to the mating of the human species, one great factor in the predisposition to disease would at once be removed.

It is also the duty of parents to live within the most favorable surroundings for the promotion of health. Cleanliness of person and places of abode, good food, proper clothing, and the avoidance of stimulants and narcotics are all factors contributing to the promotion of health. Thus disease creating



influences are defeated, and life prolonged. Human beings who live thus will have a high resistance not only against the bacilli of tuberculosis, but against all forms of infective disease.

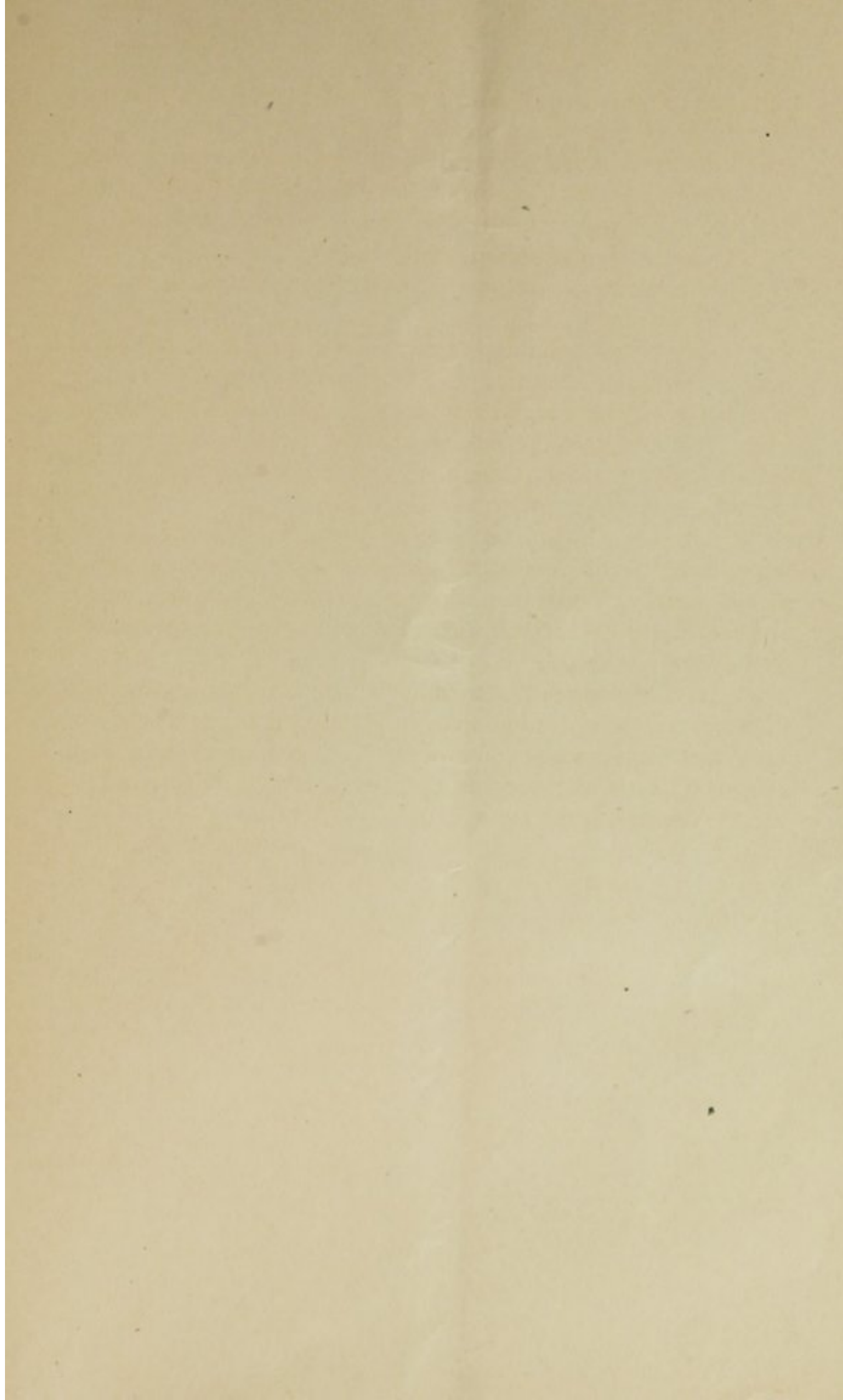
This is especially important as to the mother during child-bearing, if strong and healthy children are to be produced.

A weak physical organization should have early and continuous physical training so that powers of resistance to disease may be created.

Out-door life should be cultivated. Bicycle riding, boat pulling, walking, running, etc., in moderation, all promote deep breathing which gives strength to the lungs and carries more oxygen into the blood and this burns out impurities, and brings up the physical status to a high order of healthful well-being.

Whenever you can, go out of the cities and towns unto the hills and drink deeply of Nature's life giving element, pure air. Learn this truth, viz.: that the greatest happiness which can be attained in this life, can come only through the enjoyment of perfect health.

Last, but not least, remember that "Eternal vigilance is the price of liberty," not only from disease of one's-self, but from imposing disease upon others. Also remember the golden rule, "Whatsoever ye would that men should do to you, do you even so to them."





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