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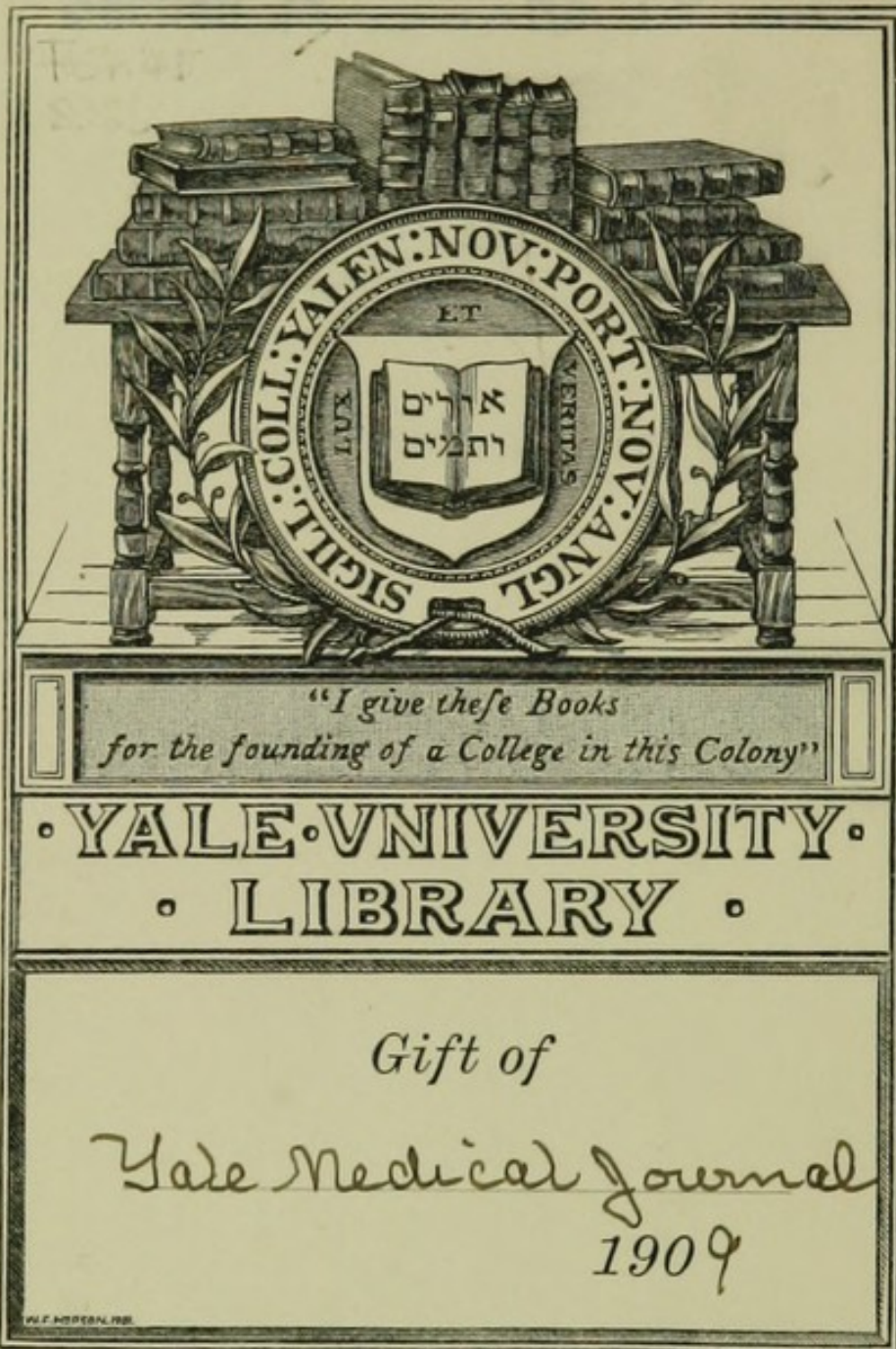
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DON'TS
FOR CONSUMPTIVES,
OR,

THE SCIENTIFIC MANAGEMENT OF PULMONARY
TUBERCULOSIS.

HOW THE PULMONARY INVALID MAY MAKE AND
MAINTAIN A MODERN SANATORIUM
OF HIS HOME,

—WITH—

ADDITIONAL CHAPTERS DESCRIPTIVE OF HOW
EVERY CONSUMPTIVE PERSON MAY APPLY
THE FORCES OF NATURE TO ASSIST
AND HASTEN RECOVERY.

—AND, ALSO,—

HOW THE DEFECTS OF HEREDITY MAY BE
BEST OVERCOME.

—BY—

Charles Wilson Ingraham, M. D.,
Binghamton, N. Y.

—
February, 1896.
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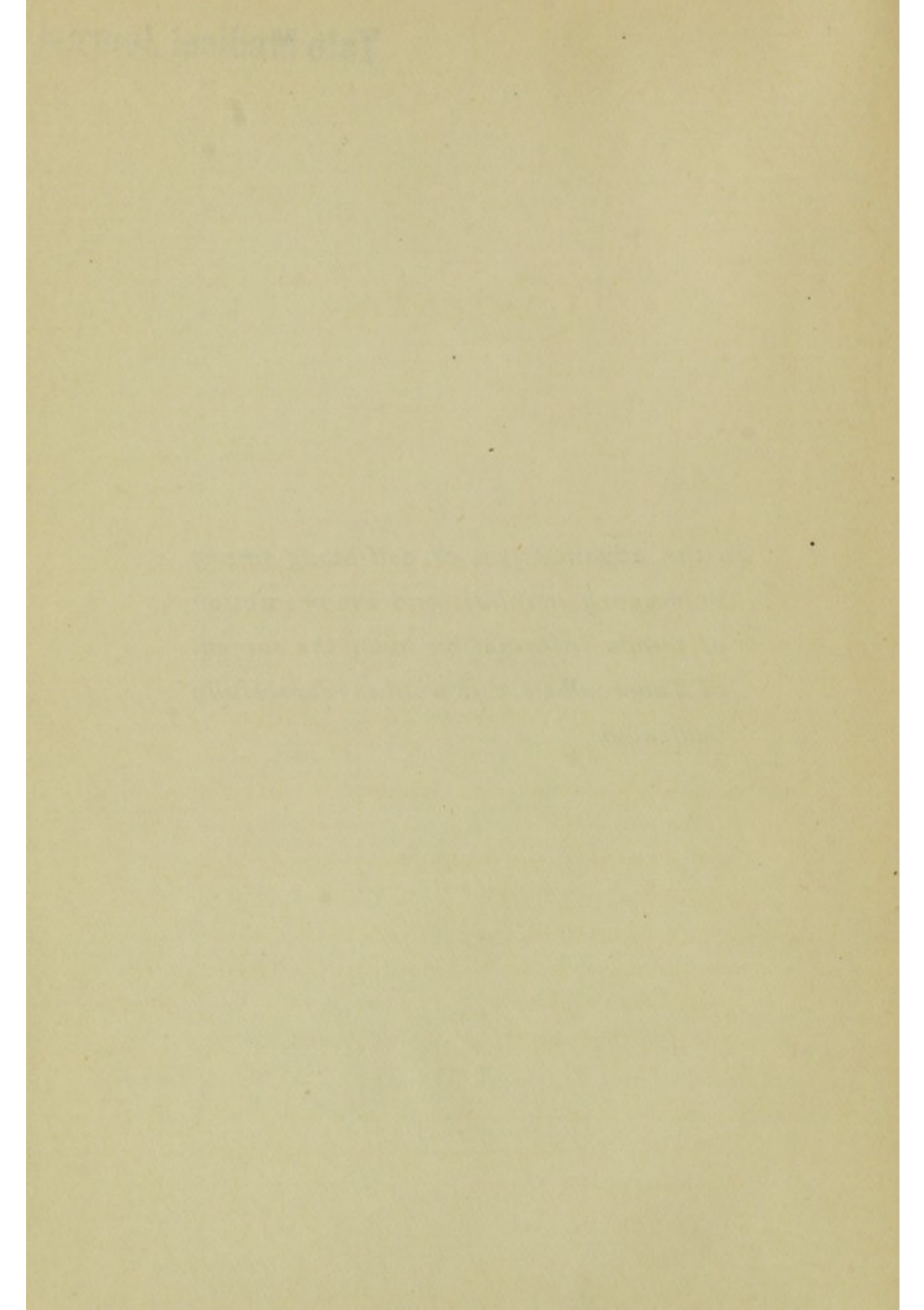
THE CALL, BINGHAMTON.

Journal of the Medical Association

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BY CHARLES WILSON INGRAHAM, M. D.
Binghamton, N. Y.

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*To the advancement of self-study among
pulmonary invalids, and the promotion
of public information upon the subject
of Tuberculosis, this work is respectfully
dedicated.*

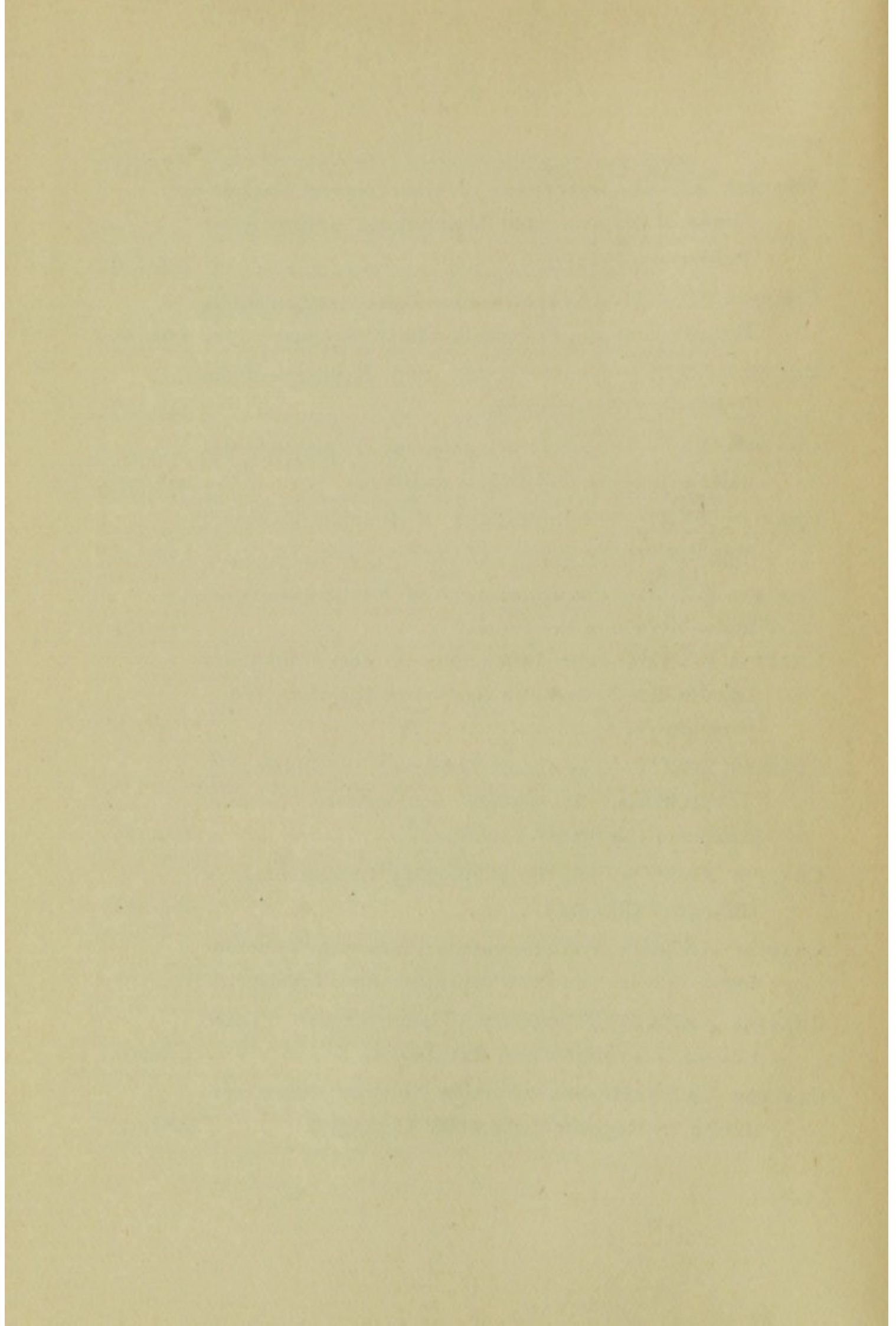


CONTENTS.


	PAGES
INTRODUCTION,	9-12
PREFACE,	12-21
CHAPTER I—Sanitary Care of Tubercular Expectoration	21-26
CHAPTER II—Handkerchiefs and Tubercular Contagion	26-29
CHAPTER III—Special Precautions against Room Infection	29-31
CHAPTER IV—Sanitary Cuspidors. Their Construction, Care and Disposal	31-34
CHAPTER V—Tuberculosis from Infected Houses and Apartments	34-42
CHAPTER VI—Dangers from Double Occupancy of Sleeping Rooms	42-45
CHAPTER VII—Special Sanitary Precautions. Precautions as Regards the Common Use of Towels, Napkins and Tableware	45-49
CHAPTER VIII—Communication of Tuberculosis by Kissing	49-51
CHAPTER IX—Tubercular Contagion in Milk and Meats.	51-59
CHAPTER X—The Consumptive's Duty from a Legal and Moral Standpoint	56-63

	PAGES
CHAPTER XI—Management of the Consumptive's Sleeping Room	63-71
CHAPTER XII—Chest Exercises for the Pulmonary Invalid	71-75
CHAPTER XIII—General Physical Exercises for the Pulmonary Invalid	75-81
CHAPTER XIV—Injurious Effects of Sudden Inhalations of Cold or Damp Air.	81-83
CHAPTER XV—Injurious Effects of Mouth Breathing .	83-86
CHAPTER XVI—Clothing for Pulmonary Invalids . .	86-91
CHAPTER XVII—The Necessity of Regularity in Taking Food	91-94
CHAPTER XVIII—The Relationship of Food Taking, Physical Exercise and Body Temperature . .	94-99
CHAPTER XIX—General Advice in Regard to Foods for Pulmonary Invalids	99-103
CHAPTER XX—A simple Means of Preventing Coughing, Paroxysms and Chills	103-106
CHAPTER XXI—Precautions in Regard to Drinking Water	106-108
CHAPTER XXII—Precautions as Regards the Use of Alcoholic Drinks	108-111
CHAPTER XXIII—Special Care of the Teeth during the Course of Pulmonary Tuberculosis.	111-113
CHAPTER XXIV—The Cough of Pulmonary Consumption. Its Causes, Prevention and Proper Treatment. .	113-120
CHAPTER XXV—Proper Care of Children Who Have Inherited a Predisposition to Tuberculosis	120-125
CHAPTER XXVI—Precautions to be Observed to Protect Children from Tubercular Infection	125-129

	PAGES
CHAPTER XXVII—Importance of Microscopical Examinations of Expecto- rated Material, as Concerns the Pulmonary Invalid	129-139
CHAPTER XXVIII—Occupations for Pulmonary Invalids, Both During and Following Convalescence	139-145
CHAPTER XXIX—"Society Life," and Recovery from Pulmonary Tuberculosis	145-148
CHAPTER XXX—Proper Heating of the Pulmonary In- valid's Sleeping and Dressing Rooms	148-153
CHAPTER XXXI—The Importance of Keeping a Correct and Systematic Record of the Body Weight	153-158
CHAPTER XXXII—The Importance of Keeping a Syste- matic Record of the Pulse.	158-165
CHAPTER XXXIII—The Importance to the Pulmonary Invalid of a Systematic Record of the Body Tem- perature	165-172
CHAPTER XXXIV—The "Rest Treatment" of Pulmonary Tuberculosis. Its Proper Application. General Effects of the "Rest Treatment"	172-179
CHAPTER XXXV—Shall the Pulmonary Invalid Make a Change of Climate?	179-191
CHAPTER XXXVI—Night Sweats of Pulmonary Tubercu- losis. Their Causes, Prevention and Treatment.	191-198
CHAPTER XXXVII—Pulmonary Hemorrhages. Their Causes, Prevention and Treatment.	198-206
CHAPTER XXXVIII—Some Further Notes on House San- itation, as Regards Tubercular Contagion	206-218



INTRODUCTION.



In the days of our ancestors, when the allied sciences of medicine and hygiene were in their infancy, the ordinary lot of the pulmonary invalid was generally a hopeless and wretched one. The future held forth nothing, and the present naught but misery. In those days little was known of the cause of consumption, much less of its various effects upon the system, and all efforts to relieve and cure the condition were correspondingly imperfect and generally barren of satisfactory results. Be that as it may. It is on the present and the future, that we must concentrate our energies, for the past cannot be redeemed.

To-day the various factors which go to make up the life of the pulmonary consumptive, have been relieved of much of their former dreariness and hopelessness. Slowly, but surely, the great search-light of modern science has broken through the clouds of ignorance and uncertainty, until by Koch's discovery of the bacillus of tuberculosis in the year of 1882, the last remnants of obscurity, so far as the cause of consumption was concerned, dissolved away. Koch's

grand discovery brought a ray of hope to the afflicted, which, with every year, has continued to grow wider and deeper and stronger, as medical science has advanced upon its triumphal march.

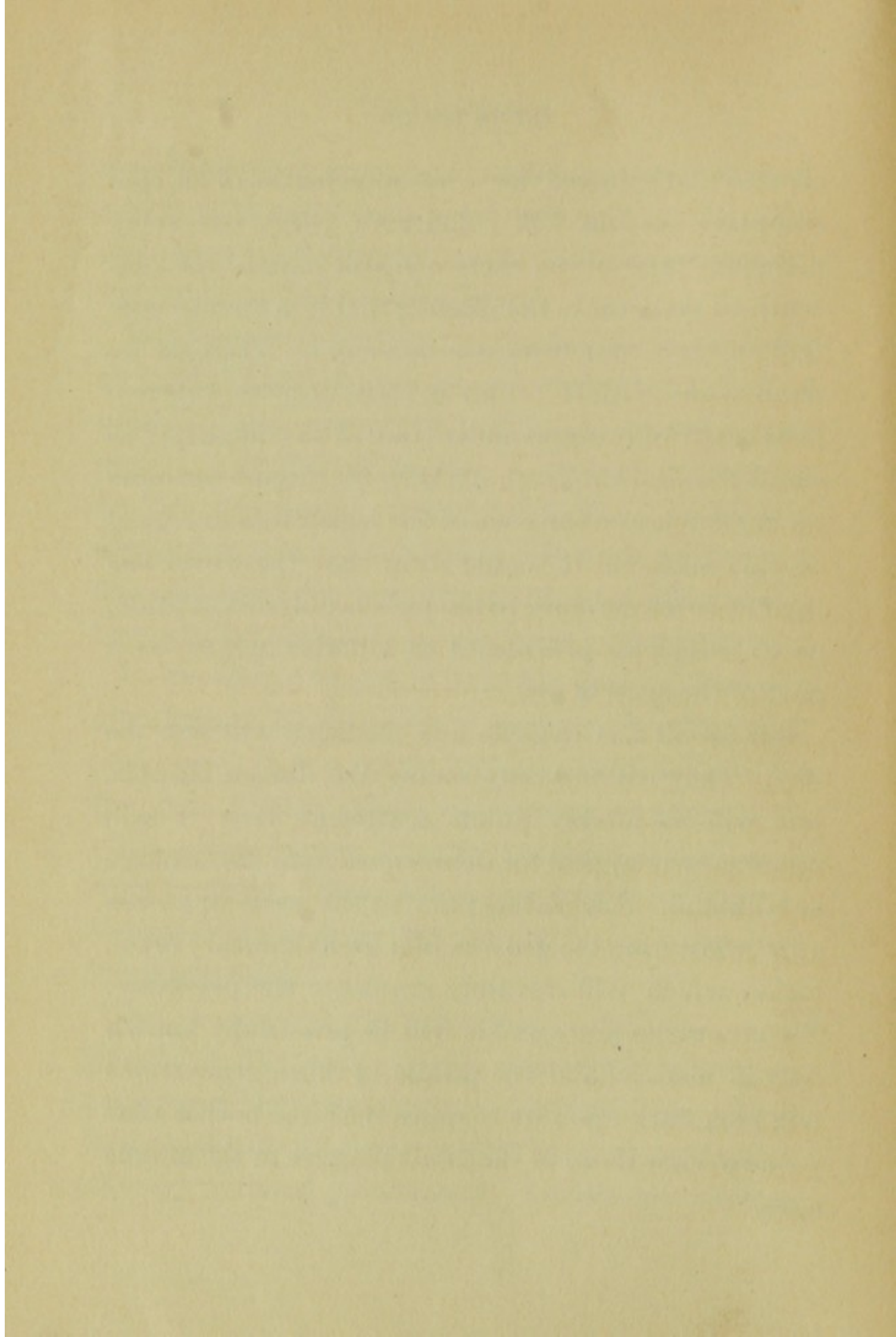
But great as have been the discoveries in the fields of bacteriology, pathology and chemistry, a lack of combined and concentrated effort has created a great gap in their line of battle. A lack of generalship renders practically useless much that could and should be made of great value. Though we have at our command the weapons to control tuberculosis, they are, for the above reason, more or less ineffective.

In the United States of America, four hundred and fifty human lives are daily sacrificed to this great pestilence. It is a costly and sorrowful tribute, for the grim disease selects the greater number of its victims from among those in the prime of youth and early maturity; those whom the world most needs, those who have everything to live for and to whom life means most

But a new era is advancing. An era made possible by the work of Koch, and which will eventually mark the extermination of tuberculosis. But it will require for its success, active exertion on the part of every national government. Legislation must be

created and enforced, for while nine-tenths of all consumptive persons will voluntarily carry out every necessary precaution, there will still remain the one-tenth to perpetuate the disease, and it is for the control of such that laws are necessary. There is no doubt that with a proper system of laws, tuberculosis could be brought under control as completely as small-pox and cholera. At best we cannot but note an indifference on the part of our legislators in regard to this subject. It would seem that the world has become so accustomed to the presence of consumption, as to accept its prevalence as a decree of fate—as a part of the cycle of life.

But for all this hygiene and medicine will win the day. They will not only render the disease curable, but will so modify public sentiment that it will unanimously appeal for deliverance from the scourge of mankind. Science has planted the seeds and even now is fostering the growth of a great sanitary revolution which will certainly eradicate the pestilence. Two centuries more and it will be practically known only in history, and the people of those generations will look back upon its ravages with the horror that we now view those of the great plagues of the middle ages.



PREFACE.

The main objects of this work are, First:—To outline to the physician and to the pulmonary invalid under his care, a method of general management which, in the experience of the medical profession of to-day, has yielded to the consumptive patient the most substantial and permanent benefit.

Second:—To indicate to the pulmonary consumptive how he shall proceed in order to obtain the full benefits of the curative forces of Nature.

Third:—To point out to those who, from hereditary or accidental causes are susceptible to tuberculosis, to those who have recovered from the disease, and to those who will recover, how they may create and maintain an immunity against tubercular contagion.

Fourth:—To educate the pulmonary invalid in the details pertaining to the absolute destruction of all infectious matter generated by his disease that he may not be of the slightest danger to the health of family, friends, or the public.

Fifth:—To interest the pulmonary invalid in his physical condition and general sanitary surroundings. To place information at his disposal wherewith he may easily obtain a thorough understanding of the various effects of tuberculosis upon the system, and to show him how, with such understanding, he may co-operate with his physician in an intelligent manner in the general management of the disease.

This in brief is the main scope of the work, and it is the author's belief, that, in placing this information in a systematic manner within the reach of the ordinary reader, he has covered a new, and important field. The work is unusual from the fact that no reference is made to the drug treatment of the disease in question. The author has concentrated his energies to the reducing of the general management of tuberculosis to a scientific basis, having been assisted to this end by a considerable experience with the disease, and by reference to the extensive and valuable store of medical literature upon the subject.

It will be readily appreciated by all readers, that the powerful remedies of Nature (air, food, exercise, etc.), may from ignorance, carelessness or indiscretion on the part of the invalid, work to his disadvantage, to the same, or indeed, to a much

greater extent, than an intelligent course could arrange them in his favor. It would seem of great and immediate importance, that pulmonary invalids should obtain a comprehensive knowledge of the effects of tuberculosis upon the various structures and organs of the body, that they may study to neutralize, and even evade many of the effects by a suitable method of management. Previous custom has rendered many quite insensible to the necessity of carrying out the finer details of management, when dealing with tuberculosis. If the same care was exercised in the treatment and management of pulmonary consumption as is the case with typhoid fever and pneumonia, and the same precautions observed in regard to the spread of contagion as in small-pox, who can deny that cases of tuberculosis would be few and far between, and these few easily curable. Treated and properly managed in the *incipient* stages, under favorable surroundings and sanitary conditions, it would be difficult for anyone to explain why recovery from pulmonary tuberculosis should not occur as a natural course of events, in ninety-five cases out of every hundred. But, unfortunately, it is the exception for tubercular persons to report to their physician for systematic treatment in

the incipient stage of the disease, and again, unfortunately, when the exception is the case the disease may be so limited that a correct or positive diagnosis is not immediately made. These then are the reasons for the enormous fatality from pulmonary consumption.

But all things considered, the question of recovery rests much with the patient. If he will constantly study his condition and with such knowledge lend intelligent assistance to his medical adviser even in the smallest details of treatment and management, he is doing much to win permanent recovery. But if, on the contrary, the opposite conditions prevail, it is scarcely reasonable to expect a favorable result. The more perfectly the pulmonary invalid understands himself, the better he appreciates the various phenomena associated with the development and progress of his disease, the better his chances of recovery, if he takes advantage of such knowledge. The fallacy of keeping such invalids ignorant of their true condition is now generally recognized, and it is fortunate it is so.

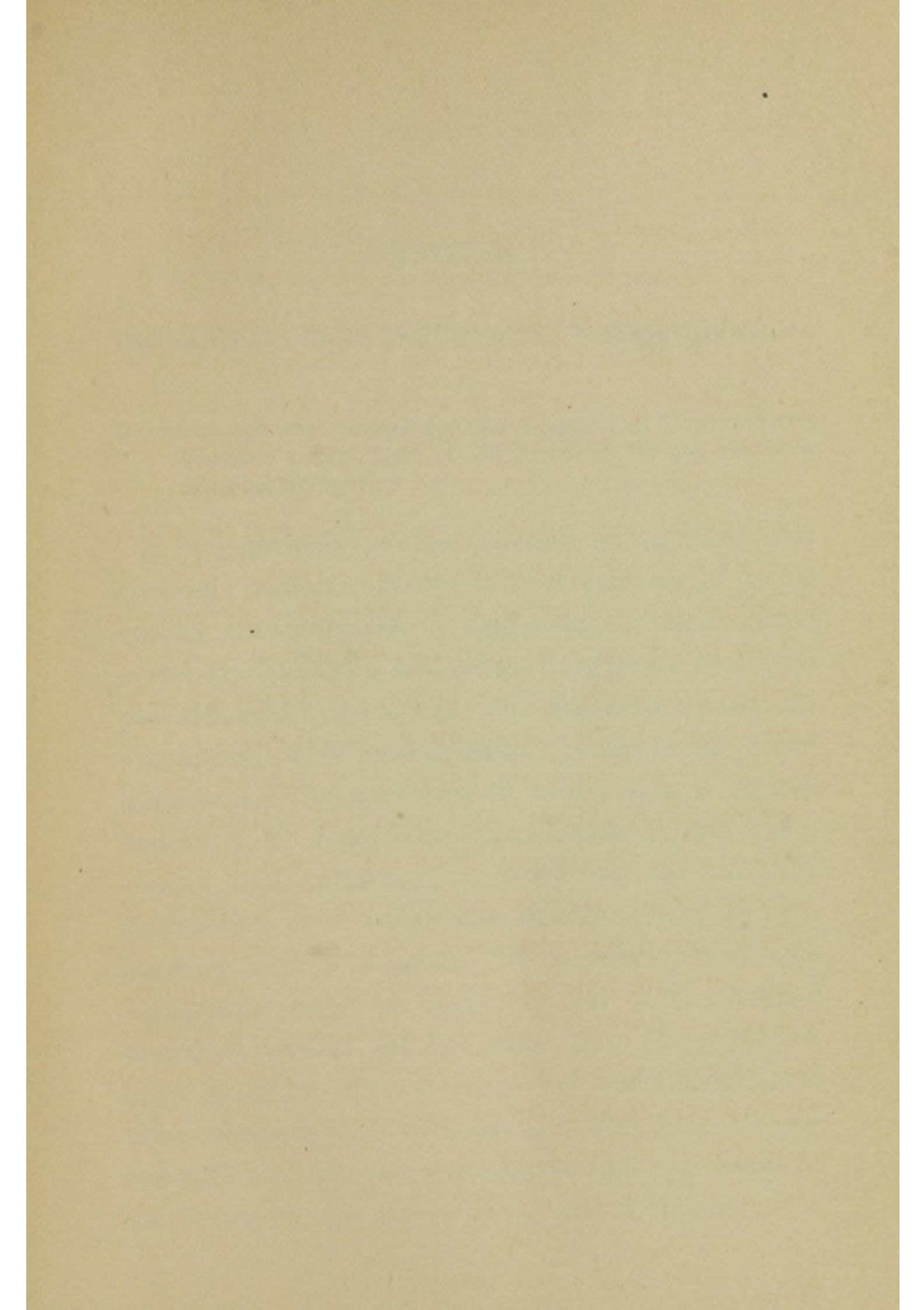
The various chapters of this book are addressed to the consumptive in person, and while discussing what should not be done, the author has endeavored to

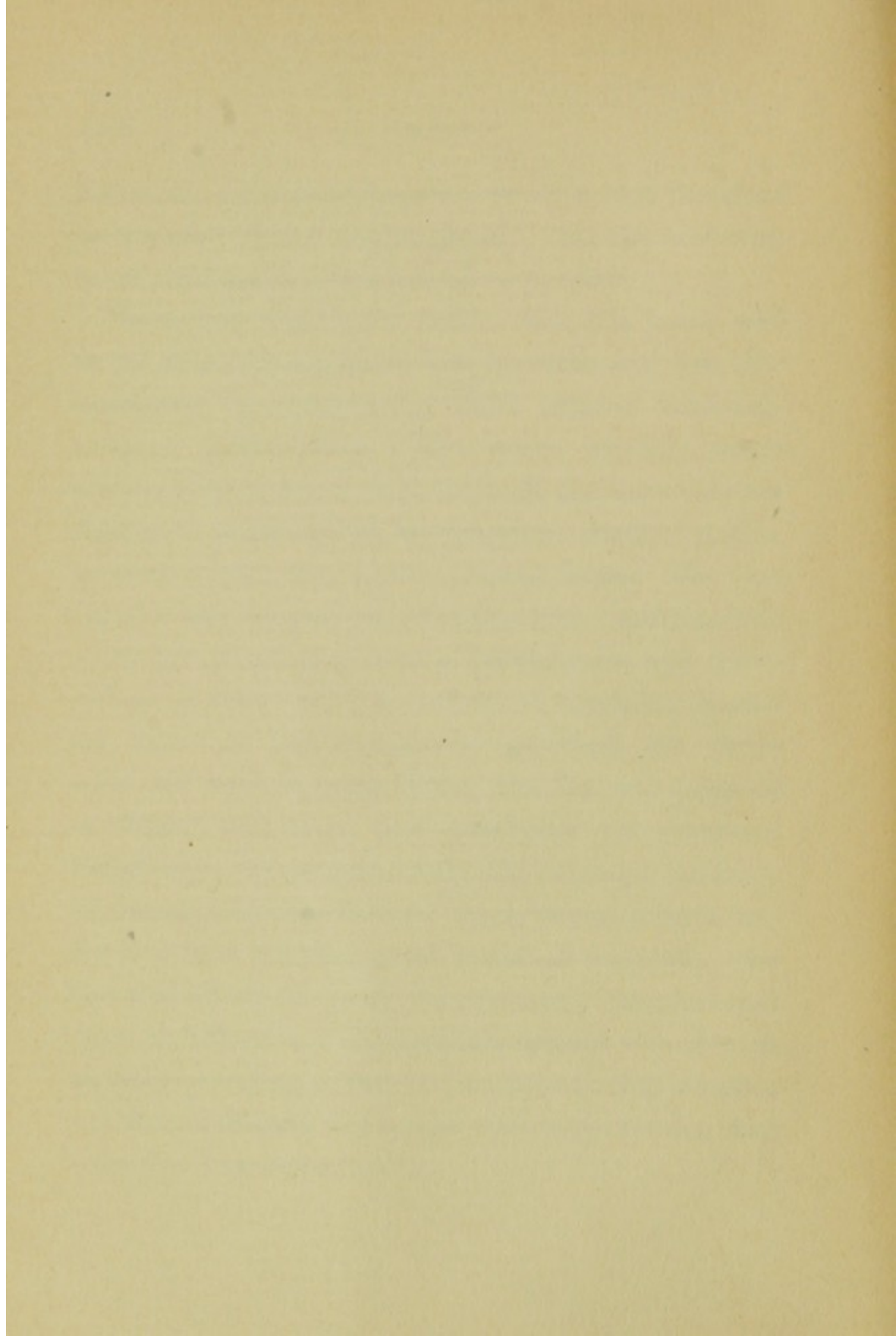
specify what should be done, and how and why it should be done. By an immediate comparison of the two opposite conditions, a more intelligent and impressive conception may be obtained by those readers who have not a medical education. It has been a constant object to arouse in the patient, a keen, discerning interest in his general sanitary environments and physical condition. The patient should not only read the various chapters but should re-read them until he is thoroughly familiar with the entire subject.

The more sensitive readers may, perhaps, object to the frequent recurrence of the terms "Consumptives," "Pulmonary Invalids," and the like, but without the frequent use of these terms, the author would have been quite unable to intelligently express himself. There also recurs in various chapters, reference to practically the same subjects, but this has been done only with a view of strengthening the text, by approaching these subjects from different standpoints. Throughout the work the terms "Contagion," "Infection," "Infectious Matter," etc., are used synonymously. This would scarcely be permitted in a work strictly for professional use, but it has been the fear of the author, that any attempt of distinction in these terms, would create more or less unnecessary con-

fusion among non-professional readers, and therefore he has used them interchangeably, that the text may be as plain and uncomplicated as possible.

The author confidently trusts that this work will be the means of rendering less hopeless and less discouraging the condition of those afflicted with pulmonary consumption. But such invalids must always bear in mind, that, as in all the departments that go to make up life, there are two distinct paths, between which they must make a choice. The one narrow and rugged, and the other broad and smooth. If the broad and easy road of carelessness and indiscretion is followed, the chances of regaining health are more or less completely sacrificed, for those who will recover must follow the narrow road of self-denial, self-study, and intelligent perseverance. Practically, the patient decides the ominous question of recovery or dissolution. Exceptional objects are not attained without great personal exertion. One can well afford to spend the necessary exertion and more, and the richer the invalid's mind is stored with an understanding of the relationship existing between health and disease, the nearer and more certain, that condition known as health.





CHAPTER I.

THE SANITARY CARE OF TUBERCULAR EXPECTORATION.

Do not adopt any method for the Disposal of Expectored Material except that which provides for its absolute destruction by fire.

It is principally to the careless, thoughtless and generally ineffective methods so extensively in vogue among consumptives in disposing of expectorated material, that the world owes the extreme and fatal prevalence of tuberculosis. No efforts to reduce this prevalence, either among human beings or the lower animals, can be successful to more than a limited degree, until every state legislature in the union creates and enforces provisions for the absolute destruction of all tubercular infection, whether arising from man or animals. To be most effective such regulations must be under control of a national board of health. At the same time the public at large must be educated to a full understanding of tuberculosis in all its phases, that they may co-operate with and support such legislation. It would be the better for the world if all school children, at a

proper stage of their education were given competent instruction in regard to the more common infectious diseases, particularly tuberculosis. Such subjects are intimately associated with the lives of all persons, and the better the understanding among the common public, the better prepared are the various health boards to combat and control contagious disease.

But in the meantime, until such alterations are made, and suitable legislation is created, it is the moral obligation of every pulmonary invalid to do all in his or her power to limit the spread of tubercular infection, and moreover, it is the duty of their more fortunate fellow beings to assist them to this end in every possible manner.

Doubtless ninety per cent of consumptive persons would voluntarily adopt all necessary precautions in such matters, did they but fully appreciate the dangers to which the slightest carelessness on their part exposes family, friends, the public and themselves. It cannot be possible that the great majority of such invalids realize the frightful consequences which are likely to follow any neglect on their part, else surely they would deem it a sacred duty to constantly guard against any possible communication of their disease.

One is not obliged to draw much upon the imagination to picture the misery, sorrow and desolation, caused by the ravages of the "great white scourge." When we stop to consider that it is to a great extent a preventable disease, it would seem there must rest a great responsibility upon our various state officials, who have the power to enact laws which would reduce to a minimum the communication of tubercular contagion, yet who, for unaccountable reasons, make little effort to bring about such legislation.

No person who has consumption, or is suspected of having it, should ever expectorate upon the sidewalk, the street, the lawn, or in any public or private place, except as will be explained.

The sputum contains exclusively all bacilli of tuberculosis eliminated from the lungs of consumptive persons, therefore, if such individuals would carefully destroy *by fire*, all expectoration, the prevalence of consumption would be rapidly diminished, and the spread of the disease quickly brought under control.

The breath of the consumptive does not contain infection, unless possibly during coughing spells, when minute particles of sputum may be violently ejected. There is little or no excuse for consumptive persons, who scatter their expectoration broadcast

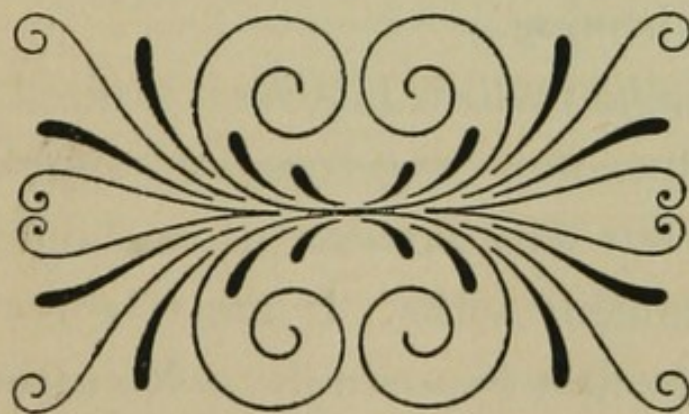
without regard to consequences. To a certain extent they suffer the penalty of their wilfulness, or carelessness, for the result is, that they so thoroughly permeate their various surroundings with tubercular infection, that naturally, they re-inhale in a virulent condition, the very germs which have been eliminated from their lungs, thus re-infecting themselves to a dangerous extent. Doubtless this fact explains why recovery in many cases is so difficult.

Thus there are three principal reasons why tubercular persons should take every necessary precaution to insure absolute destruction of all expectorated matter. First, the protection of the public; Second, the protection of their families; and Third, the protection of themselves.

As soon as possible after a person becomes aware that he has pulmonary consumption, or that there are suspicions of such a condition, he should at once purchase twenty yards or more of soft muslin (which costs about five cents per yard) and have this cut into sizes convenient for handkerchiefs. He should discard at once *all* handkerchiefs and in their place carry only these muslin cloths, which should be the sole receptacles, at all times, for all expectorated matter, except as is hereafter noted. After expector-

ating, the cloth must be folded in such a manner that the expectorated material cannot possibly come in contact with the pockets, else the object of the plan would be defeated, by infecting the clothing.

These cloths must be changed frequently, and must be burned *at the time* of changing. They must not under any circumstances be allowed to accumulate, for the sputum soon becomes dry, permitting the bacilli to escape in the atmosphere in immense numbers, in the form of invisible dust. When at home and convenient, it is admissable to expectorate directly into the fire.



CHAPTER II.

HANDKERCHIEFS AND TUBERCULAR CONTAGION.

Do not allow yourself to carry Handkerchiefs, no matter what the occasion, or how strong your inclination.

You have no right to carry handkerchiefs unless you can afford to burn them as freely as you would the muslin cloths referred to. Should you have a handkerchief with you, the temptation to use it, particularly in public places, would be hard to resist. Therefore, carry only the muslin cloths, which can be very much improved in appearance by stitching the borders and ironing.

A handkerchief which has been utilized as a receptacle for tubercular expectoration, should never be used again, but without exception should share the fate of the muslin cloths. It must be committed to the fire at the first opportunity. No attempt should ever be made to wash a handkerchief thus used, for during the process of washing the contagious material may contaminate other clothing. But this would be the minimum danger. While the hand-

kerchiefs were waiting for the wash the contained expectorated matter would become dry, and scattering about would infect the surroundings, defeating your other efforts for the entire destruction of all infection.

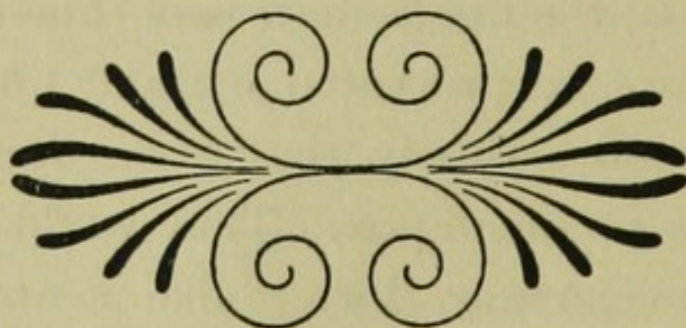
It does not matter how careful you may be in other respects, if you continue the use of handkerchiefs in the ordinary manner your various efforts for the destruction of the contagion generated by your disease will be more or less neutralized. You should lay aside all vanity in a matter of such profound importance.

The fact that the bacilli of tuberculosis cannot escape from sputum so long as it remains moist, is one of the kindest interventions of a foreseeing Providence. If it were possible for the bacilli to escape immediately into the atmosphere from the moist sputum, the dissemination of tubercular infection could not be prevented without quarantining the patient more closely than if he were afflicted with cholera or small-pox. This would be adding misery to misfortune, for, unlike acute diseases, tuberculosis extends over periods of months and years.

It must be constantly borne in mind, (and this

fact will be repeated several times), that when the sputum becomes dry, nothing prevents the germs of consumption from escaping into the atmosphere, to be inhaled into the lungs of the healthy, and to germinate tubercular disease in those who are susceptible.

Quite frequently, in families of children who are nearing maturity, one of them will contract pulmonary consumption, and in the course of a few years several members of the household will become afflicted with the disease. While the element of heredity may be responsible to a certain extent, there can be no doubt that the fatality is due principally to the extension of infection from one to another.



CHAPTER III.

SPECIAL PRECAUTIONS AGAINST ROOM INFECTION.

Do not allow the Smallest Particle of Expectoration to Remain upon your sheets, bed-coverings, or any other articles of furniture.

During paroxysms of coughing, minute particles of expectoration are extremely liable to be ejected violently from the throat, and fall unobserved upon the floor or furnishings, there to remain a fruitful source of tubercular contagion. To prevent such dangerous accidents a muslin cloth should always be kept before the mouth during coughing spells. Should small particles of expectoration accidentally escape your precautions, and fall upon the bedding, have the contaminated article removed at once and thoroughly boiled for at least an hour.

The same precaution should be repeated so far as possible, in regard to all other articles and furnishings. Carpets and furniture which cannot be subjected to the boiling process, should be immediately cleansed and strongly disinfected. Should one

become in the least careless, and fail to act with promptness in such matters, the bedding and the furnishings of the room would soon become saturated with tubercular infection. There is much danger of carpets becoming infected from the wearing of trailing street dresses, though happily for public health, this abomination is becoming less general, and it is to be hoped that the coming generation will witness its extinction.

These dresses sweep the streets, and gather up with jealous care all the infectious matter with which they come in contact, be it tubercular or other. In this manner it is carried home, to be deposited upon the carpets and about the house, or perhaps is distributed in some half dozen homes during social calls. But it is the wearer and her family who suffer most from this foolish and unsanitary freak of fashion.



CHAPTER IV.

SANITARY CUSPIDORS.

**Do not make use of a Cuspidor as a Repository for Expecto-
ated Matter, unless it is of material that can be easily
burned, together with its contents.**

In some instances it may be advisable, or more agreeable, to use cuspidors a portion of the time as receptacles for sputum, instead of the muslin cloths previously referred to. When such is the case, one should purchase small wooden boxes, (such as are commonly used for dispensing butter, lard etc.) which can be most successfully utilized as sanitary cuspidors.

No other kind of cuspidor should be allowed about the house or grounds. Put all others away so that they may not be thoughtlessly used. As a matter of economy these boxes should be purchased by the gross, as in that quantity they cost but little more than half a cent each, which renders their use practicable by those of limited means. One should also purchase at the same time a bushel of saw dust.

When about to use, fill the box half full with moistened saw dust and place a small earthen dish containing the same material in convenient proximity to the cuspidor. Following each expectoration, a sufficient amount of the saw dust should be sprinkled over it to cover all traces of sputum.

In this manner the disgusting appearance, so characteristic of cuspidors, is entirely eliminated. The sprinkling of the saw dust not only improves appearances but prevents insects from coming in contact with the contagious material. (Experiments have shown that insects, particularly flies are capable of disseminating the infection of tuberculosis, as well as of other diseases.) It also prevents house animals, especially cats, from spreading the disease, as well as infecting themselves. The author has known of cats contracting tuberculosis from the expectoration in ordinary spittoons, and no doubt at the same time the disease germs were abundantly scattered by contact of their bodies with the infectious material.

Wooden cuspidors are claimed by fire insurance companies to be a fruitful source of conflagration and therefore the moistened saw dust serves two distinct purposes; it obviates all danger from fire, and prevents currents of air from scattering the contents of

the cuspidor, as would be liable in the case of dry saw dust. These cuspidors should be placed in wire holders, or other effective means be employed to secure against their being accidentally over-turned. They should be changed as often as is necessary to insure their sanitary utility, always being burned at the time of changing. However, unless there are good reasons to the contrary, even these cuspidors should not be used, and the employment of the muslin cloths should be exclusively adhered to for the reception of all expectorated matter.

Many physicians advocate for indoor use, a metal cup into which has been fitted a piece of heavy paper which, with contained expectoration, is frequently removed and burned, the cup being scalded each time the paper is changed. This method is effective when properly carried out. But, whichever method is used, the muslin cloths should always be carried.

In some of the modern sanatoriums, cuspidors are concealed inside of the walls at convenient intervals, and are reached by opening small doors through which they are swung out on hinged brackets.

CHAPTER V.

TUBERCULOSIS FROM INFECTED HOUSES AND APARTMENTS.

Do not occupy Rooms which have been Previously occupied by a Consumptive Person, unless you know positively that the apartments and hallways or walks leading to them, have been effectively cleansed and disinfected.

A superficial cleansing will not suffice to remove all danger. To be effective such work must be performed with great care and thoroughness. The above advice applies alike to healthy persons, as well as to others, for the danger of becoming infected with tubercular disease, from neglect of this precaution, is greater than generally supposed. When traveling, and in health resorts one cannot exercise too great care. Ignorant or unscrupulous hotel managers consider it no injustice to place a guest in a room just vacated by a consumptive, who in all probability has not *strictly* observed the rules governing the destruction of infectious matter; and as a result, has left behind, scattered about the carpets, bedding, and other

furnishings, a sufficient quantity of tubercular contagion to endanger the health of many susceptible persons who might subsequently occupy the apartment. The danger is much greater from a furnished room than from an unfurnished one. The landlord who advocates that a careless consumptive person cannot have left behind sufficient infection to endanger the health and lives of subsequent tenants, should be made criminally responsible. He has no right to uphold such utter fallacy, and it would seem that by pursuing such a course he is placing himself liable for any unfortunate consequences arising from such deception.

Cornet, the noted German investigator, gathered dust from the walls, floors and furnishings, of apartments which were or had been occupied by persons afflicted with pulmonary tuberculosis, who had not exercised any special care in the disposal of expectorated matter. In this dust, in nearly every instance, he found virulent tubercle bacilli in dangerous quantities. These examinations were pursued for a considerable period and are noted for their thoroughness and reliability. Cornet's work demonstrated another important point, which should be an additional incentive for consumptives to see to the

absolute destruction of sputum. Where care had been exercised to secure complete destruction of all expectoration, the dust *did not contain tubercular germs*.

An instance which came to the author's personal attention will serve as an excellent practical illustration. In the course of a very few years three persons had died of consumption in a certain house. With a knowledge of this fact, but with apparent indifference to it, a man and wife with two small children subsequently occupied the apartments. In a comparatively short time both husband and wife had died of acute tuberculosis. What will be the effect upon the children remains to be seen, but undoubtedly the seeds of future tubercular disease have been planted in their systems. The rapid, successive occurrence of these five deaths cannot be attributed to accidental infection, or to coincidence. Without doubt the disease was contracted from infection scattered about the rooms. This is but one instance of many which are recorded, to prove how great is the danger from house infection. There is no law to prevent the re-renting of these apartments without being disinfected, and those who may be so unfortunate as to occupy them, will be more than

liable to share the lot of their illfated predecessors.

There seems no way of eliminating this great danger, until regulations are enforced requiring absolute disinfection of all rooms, whether in hotels, private residences or apartments, immediately after being vacated by consumptive persons, no matter how limited such occupancy may have been. Every state, every county and every town and city must unite in harmonious and effective action, under the supervision of competent state and national officers. It has been proposed that all houses or apartments occupied by consumptive persons be registered at the office of the local board of health, and when such premises are vacated, the authorities be immediately notified, in order that an official disinfection of the place may be carried out. And that the place shall not be re-rented without a permit from the health officials.

Such a course would impose no hardships upon the invalid, and would frequently be the means of preventing the communication of disease to others. Such legislation is now in force in the City of New York, but with comparatively few other exceptions no protection is given the public in this respect. Where civil authorities have failed to act in such matters, individuals must act for themselves, *and the fact that*

tubercle bacilli are capable of retaining their vitality for many months, must not be lost sight of. Do not allow yourself to be deceived in this matter by an eager landlord, but investigate personally the history of a proposed residence and satisfy yourself as to its safety.

Perhaps greater than the danger from house infection, is the risk of communication of tuberculosis to factory employees. The dissemination of contagion about the work shops arises from the carelessness of fellow workmen afflicted with the disease. Factory infection is one of the main gateways through which the contagion of tuberculosis passes unchallenged and without protest, to expose the hundreds of thousands of factory and counting-room employees. This mode of infection finds its greatest ratio of victims in the factories of the larger cities, where a hundred or more workmen are crowded into a single room—a room poorly ventilated and in the interior of which the rays of the sun are unknown. Here the many pairs of lungs absorb the oxygen much faster than it is supplied and saturate the atmosphere with the unhealthy products of respiration. Such conditions constitute a paradise for the tubercle bacilli, and there, protected from nature's

germicides, and seldom disturbed by those of man, they revel in their security, retaining their vitality many months longer than in the open air, which tends to perpetuate and intensify the infection.

It would be a very difficult task to find a hundred factory employees in any one factory among whom is not one or more in an active stage of pulmonary tuberculosis. Such employees may believe they have only a "bronchial trouble," and therefore have no thought of endangering the health of their associates. In such instances the physician should exercise the greatest care in pronouncing a diagnosis, and if there is any doubt he should bring to his aid all the resources possible to assist in an accurate solution of the question. Physicians can and will do much to relieve workmen of this menace to health and prosperity, but they can not accomplish all without substantial assistance from their state governments. There are no restrictions preventing consumptive persons from working in factories. In many instances it is a financial necessity, for frequently a family is dependent on such earnings. So long as their duties are satisfactorily performed they are usually free to continue, and when physical dissolution prevents a pursuance of their labor, the disease

has gained such headway, that all chances of recovery have been sacrificed.

There are many factors which conspire to make factory workmen unusually susceptible to tubercular contagion.

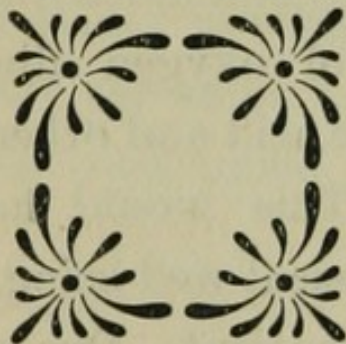
First:—On account of confinement and lack of general exercise, the vitality is greatly diminished, and they have much less resistance to the invasion and multiplication of tubercle bacilli.

Second:—There is usually much dust and irritant matter in the air, which tend to inflame and weaken the pulmonary air passages.

Third:—The bacilli are more virulent than in the open air.

The law provides that all factories shall be equipped with fire escapes, which is a very excellent precaution, but where one life is saved from fire, a score or more are sacrificed to tuberculosis from factory infection. It is certainly a lasting disgrace for any state or national government to tolerate such conditions when there is an easy remedy. Factory employees are entitled to, and should demand protection from such constant danger to health and life. The various states should take steps to assist tubercular persons who are dependent upon manual labor for

support, and should have the various health boards see that such persons are not employed in factories or counting rooms.



CHAPTER VI.

DOUBLE OCCUPANCY OF SLEEPING ROOMS.

Do not occupy a sleeping apartment with a second person.

There are two principal reasons why this rule should be strictly adhered to. First:—The air in the apartment would become much more rapidly vitiated—the percentage of oxygen diminished and the amount of carbonic acid and other products of respiration increased. This would have a detrimental effect upon the physical well-being of both occupants, particularly of the patient. One of the most important items in the successful treatment of pulmonary consumption, is the maintenance of an abundant supply of *fresh, circulating air*, in the sleeping room of the patient, being, in fact, one of the principal stepping stones to recovery. This, doubtless, is one of the foremost reasons why pulmonary invalids improve so much more rapidly in well appointed sanatoriums, where special efforts are put forth to

constantly surround the patient with an atmosphere containing the full percentage of oxygen, and a minimum of impure products. It is a custom with most sanatorium physicians, to keep their patients in the open air as much as possible. During the winter months, invalids well wrapped in robes and blankets are advised to sit upon the porch several hours each day, great care being taken to prevent their becoming chilled. That the method is advantageous cannot be doubted, there being something very invigorating and healing in the cold, crisp air of the highlands of our northern climate. There is nothing to prevent the same method from being carried out in one's own home if proper care is taken.

Second:—A consumptive should occupy a sleeping apartment alone, as a second person is very liable to contract the disease, particularly if such association is long continued, or if the person is predisposed to the disease. Husbands and wives should give this matter especial attention. A wife should never occupy a room with a consumptive husband, or a husband with a consumptive wife, no matter how strong the healthy one may be, as many cases of pulmonary infection from this cause are recorded.

Though no unfortunate termination may result, the exposure is a needless one, harmful to the patient, and dangerous to the healthy. Consumptive mothers frequently occupy rooms with one or more of their little ones, at a great risk, however, of communicating the disease to them, as such children are usually very susceptible to such infection.



CHAPTER VII.

SPECIAL SANITARY PRECAUTIONS.

Do not use Dishes, Towels, Napkins, or Tableware in common with others.

The individual use of such articles by consumptive persons should always be carefully attended to. Consumptive persons must not frequent rooms where food is being prepared, and in general it is well for them to avoid the kitchen and dining rooms as exclusively as possible.

The wash articles of the invalid, whether clothing or bedding, should not be cleansed with those of the family, or in such event, they must be boiled for an hour previous to being added to the general wash. Articles should also be subjected to the boiling process before being sent to a laundry. The finger nails must be frequently trimmed and cleaned, as infected matter is liable to get beneath them. Those who wear beards must constantly exercise caution to prevent infection from becoming lodged there.

Furnishings should not be removed from the invalid's apartments to other rooms for any reason whatsoever, unless they are first disinfected. As early as possible, proper furnishings for the sleeping room should be fixed upon, and should not thereafter be exchanged. Neither should the invalid exchange rooms with other members of the family for temporary convenience, as is very often done.

This brings us to another, though closely allied subject. Very frequently consumptive persons having occasion to make changes of residence, dispose of their various household furnishings at public auction. The different articles are transferred directly from the invalid's home and usually without any thought of disinfection. In this manner tubercular contagion may find its way into a score or more of homes from a single source. The author has known of carpets which could not but have been loaded with virulent tubercle bacilli, to be sold and transferred in this way. It would be well for persons making purchase at public auction to know something of the history of the goods. A consumptive person desiring to dispose of his household furnishings, should see that the articles are first properly cleaned and disinfected, or if such a course is impossible, he should inform the purchaser

of their probable infection, so that due precautions may be exercised.

It is in such instances that a public disinfecting station is a much needed institution. With such a facility infected furniture could be thoroughly and skillfully deprived of any and all infection.

Every city, and every village of two thousand or more inhabitants, should be equipped with a public disinfecting station and a garbage crematory. One is the counterpart of the other, and they are capable of rendering valuable service in the suppression and the prevention of contagious disease. It is quite impossible to disinfect household goods in a manner sufficiently thorough to insure complete destruction of all contagion, without the aid of a well equipped disinfecting station. When such work is attempted at a private house, there are two principal reasons why the operation cannot be successfully accomplished.

First:—Lack of facilities.

Second:—Lack of skillful operators.

It is scarcely to be expected that the public at large should have a competent knowledge of the kind and quantity of disinfecting agents necessary to destroy the contagion of the various infectious diseases, particularly of tuberculosis, and as a natural result,

the skill with which such work is usually performed is in accordance with the facilities at hand.

The necessity of a garbage crematory is of nearly as great importance, as it is remarkable that many cities of considerable size are minus both institutions. As a result, human life is unnecessarily jeopardized. Thousands of dollars are oftentimes expended for public improvements of small importance when compared with these disease destroyers. It would seem that such cities could do better with less street pavements, (if the question is simply one of expense), and perhaps do away with a few electric lights, in order to maintain the cost of running such plants. It is very doubtful, however, if taxpayers would object to special appropriations for such purposes, if they fully comprehended the protection and security they were purchasing, for a small sum in comparison with the benefits to be derived.



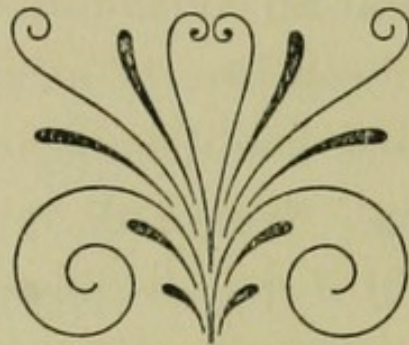
CHAPTER VIII.

COMMUNICATION OF TUBERCULOSIS BY KISSING.

Do not under any Circumstances allow Yourself to Kiss, or to be Kissed, while there remains in your system the slightest evidences of tuberculosis.

This interdiction may be looked upon by many people as ridiculous; as the carrying of preventive measures to an unnecessary extreme. Nevertheless it is very necessary that all consumptive persons should suppress this manifestation of affection, until every trace of their disease has disappeared, and recovery is beyond question. Nearly all invalids have close home relations, and it may be a constant and severe trial to adhere strictly to this timely precaution against the conveyance of tubercular infection. But when one considers that the protection is for the benefit of those most dear to the afflicted, the incentive will be sufficiently overpowering to drown all sentiment. The subject should be considered only from the standpoint of prudence and forethought.

There is no doubt that husband and wife are very liable to infect one another by repeated kissing. A consumptive mother may in this way communicate her disease to son or daughter, or the infection may be spread from sister to sister. The danger also of thus planting the seeds of future disease in the systems of young children must not be lost sight of.



CHAPTER IX.

TUBERCULAR CONTAGION IN MILK AND MEATS.

Do not Expose Animals in the Slightest Degree, to the infection of tuberculosis.

Most domestic animals are very susceptible to tubercular contagion, and should they contract the disease, much harm may be done before their condition is discovered. Unless a consumptive invalid strictly observes the rules governing the destruction of all infection generated by his condition, he should not permit himself to be about the live stock of a farm, or to frequent places to which they have access. Particularly should this precaution be observed in regard to cattle. Milch cows are very susceptible to tuberculosis and the milk from cows that have contracted the disease, has proved to be one of the mediums by which tubercular contagion is disseminated. A tubercular cow may do immense harm before the disease is discovered, particularly if the milk is

consumed in a raw state and should happen to be used by persons predisposed to tuberculosis. There are numerous reliable records of persons having contracted consumption from this source. In a certain school in France, eleven pupils died of tuberculosis in a short time. There was no apparent cause for this fearful mortality, and a special investigation was made. It was then discovered that the deceased students had obtained their milk supply from a cow with a tuberculous udder. Milk from healthy animals was thereafter secured, and no more cases of consumption were reported from the school. This is an extreme instance but it serves to indicate, and to impress upon the minds of all, the danger which is liable to arise from this source, and to which everybody under existing legislation is exposed. Therefore take the greatest care not to expose cattle to tuberculosis. Should you have in your possession a cow which from any reason you suspect of being affected with tuberculosis, you should at once notify the state authorities of the fact. When purchasing cattle, one should be well assured that they are not diseased. This point is given but little attention by dairymen at the present time. The near future will witness an improvement in this respect. The element of heredity

exists among lower animals as certainly as among human beings, and a diseased cow may transmit to her offspring depraved constitutions which will admit of the young animals early contracting tuberculosis, particularly if the disease exists to any great extent in the herd, or if they are exposed to the infection from other sources. The great danger in regard to cattle, is the unusual fact that tuberculosis may exist for years in a milch cow, without giving any decided external evidence. The diseased animal may be the finest looking in a herd. Dairymen willing to withstand the expense and trouble of having their cattle frequently examined by surgeons, whose skill in that direction is recognised, could command advanced prices for the various products of their dairies, making it a very profitable undertaking. Many families would willingly pay fancy prices for the sense of security with which they could use the products of such dairies. The day will come, and that in the near future, when all dairymen and stock raisers will be required by law to have their animals regularly examined by state surgeons, and will be obliged to have in their possession a license from such a board, before being allowed to market their products. There are persons who believe that milch

cows only mildly affected with tuberculosis in parts of the body remote from the udder, should not be indiscriminately slaughtered. It is doubtful, however, if individuals of such opinion would be willing to use in their families either the milk or beef from animals thus affected.

In addition to the communication of tubercle bacilli in meats and milk of tubercular cattle, we must also remember, as is pointed out by Professor Law of Cornell University, that the ptomaines or toxic products generated by the activity of the bacilli are, as in human beings, disseminated by the fluids of the body to all parts of the system. Therefore the fact that the animal is only moderately affected with the disease is no excuse why the meat should be used as food, as it is contaminated by these toxines.

In an address before the New York Academy of Medicine, Nov. 8, 1895, Professor Law summarized a number of precautions which should be observed by all stock growers and dairymen. With his permission the author quotes direct from his address as it appears in the New York Medical Record. No. XXI, Vol. XLVIII.

PRECAUTIONS WITHIN THE CONTROL OF THE STOCK-
OWNER HIMSELF.

“(a) Avoid breeding too young. The immature
“system is easily debilitated.”

“(b) Don't unduly stimulate the milk secretion.
“Let the diet be always sufficient to fully sustain the
“vital powers, as well as lactation.”

“(c) When the cow goes dry don't allow her to
“suffer from insufficiency nor unsuitability of food.”

“(d) Correct all conditions of ill health. Debility
“is an urgent invitation to the bacillus. On the other
“hand the most phenomenal powers of digestion,
“assimilation, and rapid growth and fattening, give
“no guarantee of protection when the germ is im-
“planted.

“(e) Old and unthrifty cows should be excluded
“from the herd. Twice to six times as many old
“as young ones are tuberculous. The first sign of
“unthriftiness should be a warrant for separation
“from the rest of the herd, and especially in the case
“of the aged. Better still to use the tuberculin test
“to decide whether the animal should not be prompt-
“ly slaughtered.”

“(f) Don't buy from a herd that has furnished
“cases of tuberculosis in recent years. Here again

“the safe course is to admit only such as have stood
“the test with tuberculin.”

“(g) Let no tuberculous person care for the herd.
“The tuberculous person is a source of greater danger
“to the herd than is even the tuberculous animal.
“In one herd where three of the family in charge had
“died of tuberculosis, I found nineteen of the twenty-
“six cows badly affected. By attending to such pre-
“cautions, by killing all tuberculous animals and
“safely depositing of their carcasses, the owner may
“reasonably hope to purify his herd of the infection
“and keep it sound.”

Professor Law recommends “the establishment of
municipal or other official abattoirs in which alone,
farm animals designed to be marketed as human
food, can be killed. This has long been in use in
Europe, and must some day be adopted in America, as
a purely sanitary measure, no matter how it may in-
terfere with the vested interests and monopolies of
individuals.”

Professor F. H. Osgood of Harvard University,
chairman of the board of cattle commissioners of
Massachusetts, in an address delivered before the
New York Academy of Medicine November 8, 1895,
stated many interesting facts regarding the preva-

lence of tuberculosis among cattle. With his permission the following extract is quoted:—"During
"the past twelve months the cattle commissioners had
"tested 24,000 cattle and of this number 3,450 had
"been destroyed as tuberculous. In several large
"herds as high as ninety-five per-cent had been found
"diseased. One noted dairy of seventy cattle, which
"had been regarded by him (Prof. Osgood) as healthy
"from physical examination, showed under tubercu-
"lin, thirty tuberculous cows. There had been no
"cases since destroying these, and disinfecting the
"premises with steam, bi-chloride solution, and white-
"wash. New cases were not likely to arise unless
"from introduction of infected cattle into the herd.
"New arrivals should always be examined before
"admitted."

Professor Osgood also states that the employment of tuberculin as a test for tubercular disease in suspected cattle had been shown not to be deleterious. "Six thousand animals had been tested with tuberculin (in Mass.) since June of 1895, and the percentage of errors had been only one-tenth of one per cent." Under date of November 30, 1895, in reply to a communication from the author, Professor Osgood states:—"We find that the best results in disinfection

are from live steam, chlorine gas, boiling water, disinfecting solutions applied to the wood-work boiling hot, and stables frequently whitewashed. Old mangers are torn out. We encourage the use of individual drinking vessels."

The bacillus or tuberculosis is capable of retaining its virulence in drinking water at ordinary temperatures. This is more dangerous to cattle which use a common drinking trough, as one tubercular cow may in this way communicate the disease to others of the herd. Hence the plea for individual drinking vessels for cattle.



CHAPTER X.

THE CONSUMPTIVE'S DUTY FROM A LEGAL AND MORAL STANDPOINT.

**Do not Antagonize the Adoption and Enforcement of any
Just Municipal or State Legislation Designed to Limit
or Control Tubercular Contagion.**

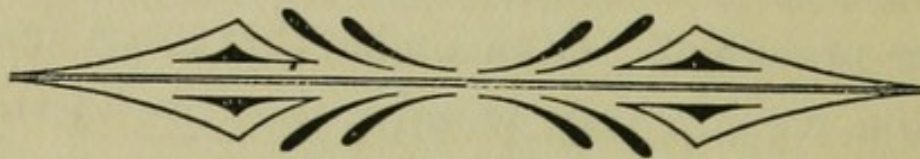
Such measures have, unfortunately, met with opposition in many cities, out of sentimental prejudice, morbid conception or both. Your influence in such matters will count and therefore lend it to the cause of humanity. Give active support to the passage of any law that has for its aim the protection of the public from the infection of tuberculosis. Under existing conditions, the public at large is utterly defenceless against wholesale exposure to tuberculosis, (with a few noticeable exceptions.) To this fact is due, in a large measure, the widespread ravages of the disease. You are actively concerned in the matter. You cannot do better than set a proper example by approving of and rigidly living up to effective

regulations. Nothing unreasonable will be expected or required of those who have been so unfortunate as to contract tuberculosis, and nothing more difficult or exacting than the careful observance of the simple, uncomplicated rules contained in this little volume, will be necessary for the protection of the multitude. Such a course will not only enhance your own recovery, but will at the same time give you the comfort and satisfaction of knowing that you are doing your full duty in this respect before God and man. It is considered a grave crime to endanger the life of a fellow being by an act of violence or willfulness, and therefore those who endanger the lives of others by needless exposure to a serious disease, are committing a grave offense, even though it does not receive civil recognition and corresponding punishment. Those who indifferently or ignorantly expose the lives of others by carelessly disseminating the bacilli of tuberculosis, receive immediate punishment to a certain extent, for, in the natural course of events they so thoroughly infect their own apartments, as to be the means of *re-infecting themselves by inhaling the very germs which have been eliminated from their own lungs*, thus retarding and in very many cases actually preventing recovery. And, as

though this were not sufficient punishment, they endanger the lives of those nearest and dearest to them; those who have watched over and nursed them.

Nuttall, of the John Hopkins University, computes that some cases of pulmonary tuberculosis are capable of expectorating more than one billion tubercle bacilli in twenty-four hours. These figures are enormous, and to a certain extent alarming, when we stop to consider that there are, in the United States, fully half a million persons suffering from an active state of this disease, and that the bacilli thus eliminated, are capable of retaining their virulence for several months. Were it not for the fact that the great majority of people are protected from tuberculosis by a natural immunity, the disease would be far more prevalent. Even under this great natural protection we can only wonder that the victims of pulmonary consumption are not more numerous. It is the constant moral and civil duty of all consumptive persons, to convert their homes so far as possible, into institutions of modern hygiene; and in their relations with the public, to take every precaution not to expose any person to a *single atom of infection*. It should not be necessary that there be a *law* to compel them to do this. They should do it gladly.

They should not only regard it a natural obligation to their fellow men, but should consider it a great blessing that modern bacteriology has shown them how, and why, they should take such a course. It has shown them how to become the greatest of philanthropists, though poverty be a constant companion.



SECTION II.

CHAPTER XI.

MANAGEMENT OF THE SLEEPING ROOM.

Do not Occupy a Sleeping Room which Cannot Be Properly Ventilated both Day and Night.

One cannot give too much thought and care to the general management of the sleeping apartment. The ordinary pulmonary invalid spends fully half the time in his sleeping room, and it is imperative that during this period he should be adding to his stock of energy and vitality. Too often, however, the conditions of the sleeping apartment conspire to deplete the energy—to rob the vital forces to the extent that it is impossible for the invalid to reimburse the deficiency, by good management during the day. There are but few things more detrimental to the pulmonary invalid, than to spend his nights in an atmosphere charged with the products of respiration, and consequently containing a diminished percentage of oxygen.

On account of impaired lungs and impoverished

blood, it is one of the great difficulties of the consumptive to obtain from the air a sufficient amount of oxygen to vitalize and purify the tissues and fluids of the body. Hence, the necessity of keeping him enveloped as constantly as possible both day and night, in a pure atmosphere.

Oxygen has long been recognized as one of the greatest germ destroyers and tissue healers, and therefore, if by proper ventilation of the sleeping room by night and by proper movements during the day, one permits himself to constantly inhale pure air, he is doing much to promote his recovery. And so, on the contrary, if he places himself under opposite conditions, he is retarding recovery to the extent that he is counteracting much of the good that is being accomplished from other sources.

The selection of a proper sleeping room for the invalid is important. Too often such apartments are chosen from the standpoint of economy or convenience, with little or no regard to the many factors which go to make up the ideal sick room. But such a course is usually a costly convenience and a sacrificing economy. Few architects give any attention to the construction of a sick room when drawing plans for a home, but in the near future this detail bids

fair to be an important item. In the ordinary modern house, there is seldom more than one apartment at all qualified to meet the requirements of an invalid's room, and very frequently this is used for other purposes. The room should face the south and east if possible, and should not be located over a damp cellar. And here it would be well to say that invalids in general should not live over damp cellars, for as certainly as they do permanent recovery will always remain beyond their grasp.

A southeastern exposure of the sleeping room not only receives the morning sun, but is exposed to the sun's rays more hours of the day than other locations, and is protected from the prevailing winds. The morning sun has a very beneficial influence upon the sick person. If the invalid awakens in the morning in a room which is dark and gloomy, his mind absorbs much of the external aspect. On the contrary, if the morning sun is pouring into his apartment, giving it a bright, warm, cheerful effect, much of the cheer is reflected to the invalid, exhilarating both body and mind. Some are more sensitive to external impressions than others, but it is well to remember, when dealing with invalids, that nature did not create sunlight simply to disperse darkness.

While this is the most practical effect, it is only the superficial result, and only when we observe animal and vegetable life struggling for growth though deprived from the sun's rays, can we appreciate its greatness—like the potato vine in the cellar, and the child in the tenement district in a great city. The chemical action of the rays of the sun on the animal organism is important, and pulmonary invalids should endeavor to obtain a maximum of such effects. But while obtaining such benefits one should exercise care not to expose himself too long to the sun's rays, as it is liable to cause headache. Those families who close their window shutters and draw their curtains succeed in keeping out the sun's rays, but at the same time they succeed equally well in turning away one of their best friends.

The benefit one obtains from living in a southern climate is not derived from any special element of the atmosphere, but rather because the dry, clear air admits of their remaining much of the time out of doors, and of ventilating their sleeping rooms with greater freedom during the night than could be done in a cold, damp climate. Invalids who have made a change of climate, and fail to attend to the ventilation of their room at night, exclude themselves, for

nearly half the time, of the benefits, to obtain which they have left the comforts of home and the care of friends.

The sleeping room should be large, airy, cheerful and inviting. It should have a comfortable, home-like arrangement. Its proper heating is explained in detail in another chapter, and it will be unnecessary to refer to it here. It is advisable that it should not be carpeted, but rather that it be supplied with rugs, which during the day should be hung in the open air in the sunshine. The floor and wood work of the apartment should be given a coat of paint or varnish as often as once each month. The general furnishings should be as simple as possible, and nothing that is not necessary to the comfort of the patient should be admitted. There is no doubt that the iron bedstead is the best. Pictures should be dispensed with. The walls and ceilings should be bare of paper, and should be whitewashed or kalso-mined once each month.

As soon as the room is vacated in the morning, the windows and shutters should be thrown wide open, and the bed clothing placed in a position exposed to the rays of the sun and to a direct draught, where they should be allowed to remain until late in

the afternoon, due allowance being made for damp and rainy weather. Very often in the colder months of the year it will be advisable to warm the bed before the invalid retires, and for this purpose nothing equals the old fashioned warming-pan.

Pulmonary invalids vary widely as to the amount of ventilation that will be beneficial to them. Much depends upon their former habits, their physical condition, and more important still the nature of the atmosphere in which they reside. Therefore, ventilation should not be advised upon in a promiscuous manner, as excessive circulation of night air in the room of one not accustomed to it, might result seriously. During the night the vitality of the body is at its lowest point, and has far less resistance to external influences, and is therefore more susceptible to exposure.

It is certainly not advisable nor necessary, to have a great volume of night air rushing through the room, but at the same time a sufficient interchange of air must be maintained to remove the products of respiration as they are generated, and to support a normal ratio of oxygen. The products of respiration must be carried off immediately as they are generated, for if this was not done, energy and vitality would surely

be wasted. The tissues and fluids would not then receive a sufficient amount of oxygen to vitalize the body and remove the waste products.

There are locations, as on the bottom lands of a foggy valley, or where the soil is damp and heavy, that ventilation must be administered with much greater care. But where the air is dry it can be admitted into the sleeping room to a point that would be dangerous in a damp atmosphere. If the invalid resides in a locality where fogs prevail, he should change his residence, if only to the top of some neighboring hill above the fog level. It is damp air rather than cold air which is productive of harm, and one must therefore guard the ventilation, when such conditions prevail. Such air has a very unfavorable influence upon the mucous membranes of the air passages, tending to keep them in a state of congestion and catarhal irritation.

If the bedding is sufficiently heavy and of quality which will keep the body perfectly warm, one can sleep in a very cold room without any danger, and usually with excellent results. Woolen sheets and blankets are to be recommended. A large rubber blanket (the size of the quilts) should be placed over the bedding. They are invaluable to keep the tem-

perature of the body up to the normal point, and should be generally used. They are quite inexpensive. Inasmuch as but few sleeping rooms are rightly constructed as regards the relation of the bed to the windows, one must study to place the bed in a position not exposed to a direct draught. There are "patent ventilators" which seem to operate to good advantage, and should be used if necessary. The invalid must not convert his sleeping room into a day room, unless when following the "Rest Treatment," as this prevents its proper airing during the day. When one retires for the night he should go into a fresh, airy chamber, free from the stuffiness and odors of the ordinary day room.



CHAPTER XII.

CHEST EXERCISES.

Do not Neglect Systematic Chest Exercises Designed to Strengthen the Muscles of Respiration, and to Increase the Breathing Capacity of the Lungs.

Fortunately, mild chest exercises are not open to many of the undesirable after-effects so liable to arise from imprudent general training, but nevertheless "chest gymnastics" should be begun with caution and discrimination. To increase the breathing capacity, or in other words, the area of oxidizing surface of the lungs, should constantly be one of the chief endeavors of the pulmonary invalid.

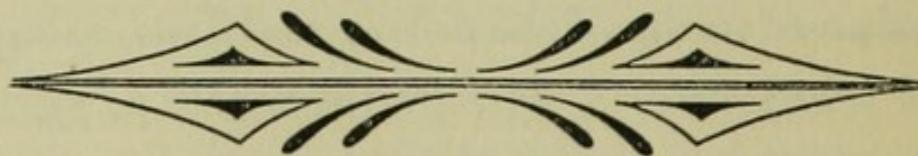
The development of the chest to a normal condition is one of the important objects to be accomplished, in order to obtain successful and permanent results in the treatment of pulmonary consumption. It is extremely unlikely that an apparent recovery from this disease can be of a permanent nature, if the chest still remains narrow and contracted; but such

recovery may be made permanent, if means are at once successfully employed to develop the chest, and then to maintain a normal proficiency, by continuation of proper exercise and the adoption of suitable employment. It is remarkable how rapidly the breathing capacity of the lungs may be increased if suitable practice is maintained with persistence and regularity. As with the employment of general exercises, one should begin mildly, and increase by definite degrees, as he becomes accustomed to the training. Too severe exercise at the beginning is apt to cause soreness of the chest and discourage the individual. There are many and varied methods which may be successfully utilized to accomplish the object in question. A favorite method of the author is the use of a common rubber sack of ten gallons capacity, fitted with a stop cock. This by the aid of an air pump or a "pair of bellows" is filled with pure air, and then with rubber tubing is attached to an ordinary inhaling flask. The contents of the sack are slowly inhaled, a record being kept of the number of inhalations required to exhaust the sack. During the first ten days, no great effort should be made to practice deep inspirations, but, as the lungs become accustomed to the exercise, restraint may be

gradually laid aside. Assuming for example that it would require at the beginning, forty inhalations to empty the sack, this would indicate that the actual breathing capacity of the lungs was one quart. As a rule, patients become much interested in this practice, as they can constantly see for themselves just what benefit is accruing from their exertions. I have frequently known patients, who were obliged at the beginning to take more than sixty inhalations to empty the ten gallon sack, to receive such benefit from the training as to be able, in a few months, to perform the task easily with from fifteen to twenty inhalations. Some who have begun with thirty inhalations have reduced the number to ten, which indicates a breathing capacity of one gallon. When for any reason it is desirable, oxygen gas may be used in place of air. Patients who have begun with a total chest expansion of two inches, have in this way increased the expansion to five and often six inches. With the increase of chest expansion there is usually a diminution of many of the active and distressing symptoms of the disease. The blood is better oxygenated, the poisonous products of disease are more perfectly eliminated, and this in turn leads to an improvement in the general physical condition. A good chest ex-

pansion means to the consumptive, strength, vitality and disease resistance, which strongly antagonize the extension of tubercular processes, and tend to heal the lesions already present.

There are other exercises, the object of which is "squaring the shoulders" and developing the muscles of the chest, which may be used in conjunction with the method just proposed. The "Indian Club" and "Dumb-bell" exercises are familiar to all. Great benefit may sometimes be derived from the use of compressed air, which fills the lungs under a considerable pressure, forcibly dilating the air cells. But this is a somewhat complicated operation, and should always be administered under the personal direction of a physician. Where there is a tendency to pulmonary hemorrhage, chest exercises should be pursued with considerable caution.



CHAPTER XIII.

GENERAL PHYSICAL EXERCISES.

Do Not Neglect Suitable Physical Exercise, if in the Opinion of Your Physician, General Physical Exercise is Admissable in Your Case—Never under any Circumstances Take Physical Exercise or Undergo Physical Exertion to any Extent unless Previous Experience, Study and Observation, Have Shown that Such Exercise Will Not Affect Your Condition Unfavorably.

Pulmonary tuberculosis represents a diminution of general physical energy, and by adjusting the movements of the invalid, afflicted with this disease, so that his income of energy shall be in excess of the outgo, recovery will progress. One must constantly endeavor to add at least a little every day, every week and every month to his stock of energy. If one's general movements are absorbing energy faster than it is generated, physical dissolution will steadily progress, despite the most vigorous treatment. A little physical indiscretion to-day and a little a week from to-day, may absorb all the vitality, and possibly more, than has been accumulated in the interval.

The daily and weekly records of the body weight, the temperature, and the pulse according to directions in chapters thirty-one, thirty-two and thirty-three, will indicate quite accurately whether energy and vitality are increasing or diminishing.

On the whole the question of general exercise, in its relation to recovery from pulmonary tuberculosis, is one of the most important that comes up for consideration, and must not be passed over lightly.

Splendid benefits or disastrous effects may result from a given amount of exercise or physical exertion, according to the constitutional condition of the invalid, the extent of the disease, the nature of the disease—whether slow or rapid, and finally, whether or not complications exist or *are threatened*,

Therefore exercise cannot be indulged in promiscuously, and the sooner the invalid appreciates this fact, and the possible harm which may overtake him if he does not observe it, the better his chances of recovery. All the above factors must come up for investigation before the physician should advise any decisive action in the matter.

This must be first ascertained: What is the usual daily average of the pulse and temperature when the patient maintains moderate physical quiet. Second:

What is the effect upon the temperature and pulse from a definite amount of exercise, as for instance half an hour mid-way between breakfast and dinner, and half an hour mid-way between dinner and supper. Compare the temperature for the day with that when physical rest was maintained (in accordance with the temperature chart). If it is found that the temperature and pulse are noticeably higher, the exercise must be reduced until the point is reached where little or no influence is made upon the temperature and pulse. If, on the contrary, the pulse and temperature are not affected by the first amount of exercise, this extent may be continued and skillfully increased upon.

A third factor also enters into the question of physical exertion. Does a definite amount of exercise induce general physical fatigue to the extent of considerable depression? This must be considered, though as a rule, it is not the case when the pulse and temperature are not influenced unfavorably. When it is the case, however, the amount of exercise must be reduced until such effect is not produced.

With definite information upon these three factors, the physician is in position to render expert advice in the matter of exercise, and by following the details

indicated in the temperature chart, the patient may constantly place reliable information at the disposal of his medical adviser.

It will be readily understood that the invalid's condition may be such that he should not exercise at all. A certain percentage of cases of pulmonary consumption, progress very rapidly, a condition commonly known as "quick" or "galloping" consumption. Tuberculosis of this nature is characterized by the constant presence of a very high fever, rapid loss of strength and weight, and progressive destruction of lung tissue.

This form of tuberculosis does not permit of any general exercise, and the only process or method of combatting its progress with any hope of success, is the employment of what is known as the "Rest Treatment." Such treatment consists of the invalid's remaining in bed as constantly, as if afflicted with some serious acute disease, as pneumonia or typhoid fever.

The temperature record will indicate whether the disease is of the "galloping" form, or whether it is tending in that direction, and as soon as there are any suspicions that such condition is developing, the "rest treatment" should be immediately

adopted. This treatment is considered by the author as very important, and is described in detail in another chapter. In his opinion it should be much more generally employed than is the case.

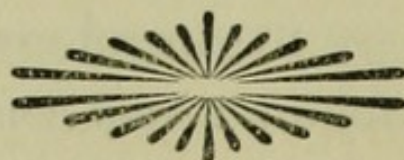
In "quick consumption," the more one exercises, the higher will be the temperature, and the more rapid the course of the disease. It will appeal to the reason of the most obstinate, that, with the prospect of such results, general physical exercise should not be indulged in, no matter how strong the inclination, and no matter what the financial sacrifice from adopting such a course.

When appropriate physical exertion does not induce any unusual elevation of temperature, a graded course of exercise will be of great benefit. But it does not matter how favorable the temperature may otherwise be, if one carries physical exercise to extreme, or in other words, pursues the training in excess of the strength, the fever will become elevated out of proportion to the extent of the disease.

Therefore in regard to general exercise, the pulmonary invalid must follow a very conservative course. It is in his power, by properly and constantly studying the various factors which are related to the disease, to reduce the management of his condition

to an absolute science, and thus render invaluable service to his physician. From what has been said it will be seen that physical exercise may be a loyal friend or a bitter enemy, in accordance with the consideration and intelligence with which it is utilized. Begin away down the scale and increase or diminish by definite degrees, in accordance with its effects upon the system. Report all noticeable effects to your physician, and he can then intelligently assist you in formulating plans, as to the kind and extent of exercise that will be most beneficial, and least productive of possible harm. Do not relax even for a day in such study and observation.

One should be very careful when taking horseback or bicycle exercise, for the temptation to take long rides, at the risk of extensive physical harm, is at times quite irresistible.



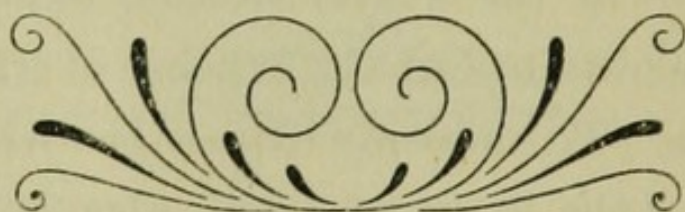
CHAPTER XIV.

INJURIOUS EFFECTS OF SUDDEN INHALATIONS OF COLD OR DAMP AIR.

Do Not Go Suddenly into Cold or Damp Air, and Take a Deep or Even an Ordinary Inhalation—It is a Common Practice with Some to Step Suddenly out of Doors and Fill their Lungs as Full as Possible with Fresh Air—This is, However, an Injurious Practice.

After going out of doors, when the weather is cold or chilly, one must allow the lungs to become gradually accustomed to the change of temperature, and even then begin chest movements very cautiously. To step suddenly out into a cold or damp atmosphere and take a full inspiration, will almost certainly result in more or less unnecessary coughing. The lungs are usually benefited by the peculiar elements contained in the keen, crisp, dry air of the winter season, but this benefit must not be obtained at the expense of irritating the air passages. To suddenly expose the whole breathing surface of the lungs to a cold atmosphere, is like plunging a heated glass dish into cold water—a process which usually results disastrously to the

glass. Sudden exposure of the air passages to chilling influences must by all means be avoided, and fortunately this is easily accomplished. Upon going out into the cold air, keep the mouth closed, and take a very shallow inhalation through the nostrils, holding the breath for a short time, thus, allowing the inspired air to become warmed. Gradually increase the depth of the inspirations, holding the breath a short time with each act. In this way the lungs will become gradually accustomed to the atmospheric change. Moreover this method seems to warm up the whole body and prevents to a considerable degree, the sensation of chilliness. One should avoid foggy atmosphere. It is better to choose a residence in a locality where fogs do not prevail. Hilltops of from five to seven hundred feet elevation above the river beds, are usually free from fogs.



CHAPTER XV.

INJURIOUS EFFECTS OF MOUTH BREATHING.

Do Not Allow Yourself to Breathe Through the Mouth—Many Persons Unconsciously Breathe Through the Mouth Almost Constantly, to the Great Detriment, However, of the Throat and Lungs.

Mouth-breathing is unnatural, and injurious in many ways to healthy persons, and particularly harmful to those who have a throat or lung disease. The nostrils are possessed of distinct physiological and mechanical functions, and should be allowed to perform, so far as possible, that which nature intended. In its passage over the nasal membranes, the air is warmed, and dust and other irritants ordinarily held in suspension in the atmosphere, are more or less completely removed. In addition to this, the nostrils doubtless promote further modifications of the air for its reception in the delicate and sensitive passages of the lungs. Air inhaled through the mouth, passes at once to the lungs in a crude, unmodified state, dust irritants and all. Much of

this foreign matter lodges in the lungs, where it remains to excite more or less irritation, greatly to the detriment of the individual, whether or not he has any throat or pulmonary disease. In the winter months additional harm is done by inhaling the cold air which still further excites the condition, and many a case of persistent bronchitis or throat disease resists all treatment from this cause.

“Mouth-breathers” are much more susceptible to inflammatory diseases of the air passages, in both acute and chronic forms. There is no doubt but that one of the functions of the nostrils is to act as a safeguard against tubercular infection; the bacilli lodging on the moist tenacious surfaces of the membranes; while, if inhalation through the mouth was practiced, they would pass directly into the lungs, there to light up disease in the susceptible, and still further increase the irritation in those who were tubercular. Proof of this important function of the nostrils, is shown from the fact that tubercle bacilli have been found on the nasal membranes of healthy persons. It will require some effort to break one's self of the habit of mouth-breathing, (in most cases it is a habit), but one cannot afford to antagonize or disharmonize any of the various functions with which nature—as

if foreseeing the necessities of man—has so generously equipped us. In some cases abnormal growths in the nostrils prevent breathing through them naturally. In such cases a slight surgical operation will afford relief, and such operation should not be postponed.



CHAPTER XVI.

CLOTHING FOR PULMONARY INVALIDS.

Do Not Adopt Any Clothing Which Does Not Insure, as Nearly as Possible, a Uniformity of Warmth—The Subject of Clothing is an Important One—Individuality is, However, so Pronounced that it is Impracticable to Frame Any, Except Very General Rules as to the Clothing of Pulmonary Invalids.

The clothing must insure, so far as is possible, a uniformity of warmth, particularly during the cold months. In the general management of pulmonary disease, the subject of clothing is one of the most important factors, and it should, in all seasons of the year, be given thorough and judicious consideration. It is strongly recommended that all consumptive persons, as well as those predisposed to the disease, wear a good quality of flannel next the skin during the entire year, reducing the weight of them slightly during the mid-summer months. There is no climate which is not liable to sudden changes of temperature, and at such periods one receives special

reward for carefulness and discretion. There is scarcely an individual, no matter how strong and healthy, but contracts a cold, or in other words, an acute inflammation of the larger air passages, as a result of discarding flannels for the summer. Persons whose lungs are weak or diseased, are much more liable to contract colds from comparatively slight exposure, and therefore they should exercise special precautions in regard to clothing. In pulmonary invalids these acute inflammations have an intensified effect. They reduce the vitality and disease resisting powers of the lung tissue, allowing the tubercles to spread more rapidly.

Those who have weak lungs, with or without an hereditary tendency to tuberculosis, oftentimes develop the disease, as a result of repeated colds, which so weaken the mucous membranes lining the air passages, that upon exposure to infection, the bacilli lodge, multiply, and invade the pulmonary tissue with but little difficulty. With proper attention to clothing such results might be avoided. In consumptive and scrofulous persons the mucous membranes which line the air passages are constantly in a more or less chronic catarrhal state, and become inflamed from comparatively slight causes.

The clothing of gentlemen, so far as deficiency in warmth is concerned, is not seriously affected by the rules of fashion, but it is a widely acknowledged fact, that a majority of the gentler sex in this and other civilized countries, suffer notoriously from their devotion to the various and changeable freaks of style, the originators of which consider comfort and physical welfare the least important factors. The so-called styles may demand the wearing of substantial coats one season, while the following winter may witness the wearing of short capes, miserably ineffective in affording protection from the vagaries of a northern climate. The protection given by the coat of the previous winter renders the exposure the more dangerous. Invalids must ignore fashion, as completely as if it did not exist, and make use of wraps designed solely for their supremacy in affording the most perfect protection to the wearer.

There are many individuals who try to deceive themselves into the belief, that by allowing the throat and neck to be exposed to all sorts of weather, they will "toughen" those parts and thus promote greater resistance against taking cold. But where one throat is toughened, twenty or more are weakened, and the road paved to a more or less serious

disease of the throat or lungs. It is very important, both as concerns invalids and healthy persons, that the upper part of the chest, the neck, and the throat be specially protected during the cold months. Those persons who take cold repeatedly, despite all precautions, will find great relief from placing a pledget of cotton in each ear when going out in the cold air.

Insufficient footwear is another source of complications in the management of the pulmonary invalid, and though it is very easily remedied, it is remarkable how frequently colds, attacks of pleurisy, and the like, may be traced back to carelessness of foot-dress. Such complications may be prevented by wearing a good quality of woolen stockings during the colder months, by avoiding thin-soled shoes, by keeping the shoes well protected from cold and damp, by wearing rubbers on all occasions, when there appears to be the slightest danger of chilling or dampening the feet. During the cold seasons, in addition to heavy rubbers, leggings should be worn regularly. Country people, as a rule, give special attention to the protection of the feet, looking to warmth rather than style. This, to a certain extent, may account for their hardiness and notable freedom

from tuberculosis. Modern machinery has turned out many elegant articles of foot wear, particularly stockings, but the old-fashioned woolen stockings, made from homespun wool, and knit by hand, will never be duplicated by other means, in affording protection and comfort.

In conclusion the author wishes to emphasize the importance of keeping the feet warm and dry. Chilling and wetting the feet is very frequently the cause of serious results to the pulmonary invalid, and there is no excuse and but little sympathy for those, who from sheer carelessness, or thoughtlessness, expose themselves to the merciless influences of the weather.



CHAPTER XVII.

REGULARITY IN TAKING FOOD.

The Taking of Suitable Foods at Regular Hours, is a Very Important Factor in the General Management of Tuberculosis, and as it is Attended or Neglected, Recovery or Dissolution May Result in a Given Case.

The pulmonary invalid should make it one of his golden rules to take his food with precise regularity. He should devise a schedule, appointing regular hours for the taking of food, and should then live up to such schedule, which should be made to harmonize with his various physical movements, as is more fully explained in the following chapter. The hours for exercise, *should be well apart* from the hours for taking food. The organs of digestion and assimilation have naturally a delicate and complicated task to perform, and even when the body is in an ordinarily healthy condition, the digestive functions become quite frequently deranged.

When the body is diseased the various organs deteriorate in proportion to the general loss of strength and vitality. Tuberculosis, however, is an exception, for in the case of pulmonary consumption, the digestive organs become weakened quite out of proportion to the constitutional weakness. Not only are the muscles of the stomach weakened, but the blood, from which the digestive fluids are derived, is so depraved that it is unable to supply digestive fluids of a normal strength and quality. Then, too, irritant cough is another source of gastric irritation.

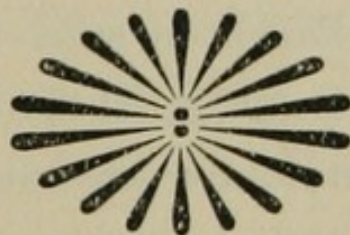
Extensive derangement of the digestive organs will block the road to recovery for a greater or less time, in accordance with the severity and persistence of such derangement. An ounce of prevention is, in this case worth *many* pounds of cure, and therefore the pulmonary invalid should study to regulate his physical exercises, and follow a diet which promises the least disturbance of digestion.

There is a morbid tendency for the stomach to become disordered during the course of pulmonary disease, and in many cases, indigestion and gastric irritation, are very painful and serious symptoms. *Regularity* in taking *proper* food, at proper times, is the foundation of success in the general management of

pulmonary consumption, and proper observance of these precautions will do much to remedy and prevent gastric complications.

Vital force or disease resisting power of the body, is the check rein upon tubercular disease. It is very important that this force be maintained at the highest possible standard. There are many elements, such as fresh air, sunshine, general exercises, chest exercises, etc., which contribute largely to the maintenance of vital force, but more important than these, though they are necessary adjuncts, is the normal digestion and assimilation of good, nutritious food.

One should make every effort to follow those rules which promise the greatest benefit from food, and which will keep the digestive organs in the best possible condition to perform their respective functions.



CHAPTER XVIII.

THE RELATIONSHIP OF FOOD TAKING, PHYSICAL EXERCISE, AND BODY TEMPERATURE.

Do Not Under Any Circumstances Take Your Principal Meals When You Are Bodily Fatigued, When the Body Temperature is High or Sub-normal.

The reason for this precaution is very plain, for when the body is tired, which means that the general muscular energy has been temporarily exhausted, the digestive organs are also enervated and are in no condition to perform their work. Only when the body is rested, is the stomach in condition to carry on its work, and any carelessness in this particular, may cause more or less prolonged gastric disorder, according to the extent of such indiscretion.

In view of what has been said in the Chapter on general exercise, it is assumed that if one should become fatigued, it would be due entirely to unavoidable or accidental circumstances. It is imperative that the pulmonary invalid should not carry any exercise or occupation to the extent of over-exertion,

for the harmful effects of such a condition other than affecting the digestive organs, are too serious to permit of any trifling. Many an invalid, who may be taking very good care of himself with this one exception, is doubtless prevented from recovering his health, from the effects of injudicious exercises. Therefore, should one feel tired at his regular meal time, he should lie down and rest for at least half an hour, and better a whole hour. On general principles it is advisable for the invalid to lie down and take complete physical rest for at least thirty minutes previous to the mid-day and evening meals. One should make it a part of his general management to follow this practice regularly. One cannot treat his stomach with too much consideration. It is an organ which serves a good master well. Attacks of indigestion, so common with lung disease, may be almost entirely prevented by following out the course herein outlined. Digestive derangements are unfortunate occurrences, and while they last, progress towards recovery is suspended, and as a rule several pounds of flesh are sacrificed with each attack. When the scales which decide between recovery and dissolution are wavering in the balance, each straw in favor of recovery

is important. Each and all of your various daily movements are factors in the question of recovery or dissolution, and it is well to know that they are entered on the side of recovery.

In appointing a regular hour for taking the principal meal several factors enter into the question, and each invalid is a study of himself. It is impossible for the author to give more than some general advice on the subject. The necessity of taking the principal meal well apart from the taking of active exercise is explained in the previous chapter. Body temperature is also an important factor in appointing an hour for the principal meal. By comparing the temperature records for a number of days it will be readily discovered at which period of the day the temperature remains nearest the normal mark for the longest time, and other things being considered, and found equal, such period should be fixed as the hour for taking the principal meal. When the temperature is considerably above the normal mark, digestion and assimilation are not advantageously performed, and when the temperature is at its HIGHEST point the digestive organs are quite incompetent of performing their functions. Hence the necessity of taking the principal meal when the temperature is nearest the normal

mark. In the ordinary case the hour of One P. M. is usually the most favorable period of the day. At this hour the body heat has usually recovered from the morning depression, and is on the rise which will continue until it reaches its highest point late in the afternoon or early in the evening. Therefore, in the average case, if the principal meal is taken very near One P. M. its digestion will be accomplished before the temperature reaches the point inconsistent with good digestion. If the meal were taken considerably earlier than One P. M., the chances are that the body would not yet have recovered from the sub-normal temperature usually present in the early part of the day, and as a result digestion would not be properly performed. Therefore, the pulmonary invalid is practically "Between two fires," he must evade the sub-normal temperature of the early part of the day, and at the same time must evade the high temperature of the early afternoon.

Therefore, a good schedule is this:—The invalid should take his glass of hot milk before arising in the morning, as explained elsewhere, should breakfast some half hour later, repeating the glass of milk at breakfast, which would assist in bringing up the temperature of the stomach to a point favorable to good

digestion. Assuming, for instance, that the invalid breakfasts at nine o'clock; at 9:30 he should take his third glass of hot milk, and at 10 o'clock should take a fourth glass.

Shortly after ten o'clock he should take his usual general exercise, which should last for half an hour, more or less, as his individual case might admit. Returning from this exercise, he should lie down and take complete physical rest, preparatory for the principal meal. During the morning hours he should take no drink but hot milk, or other *nourishing hot drink*. By repeating the hot milk after the manner above described, the invalid will derive much nourishment.

Later in the day, some two hours after the principal meal, he may take cool milk (not cold). It is recommended elsewhere that the invalid take two quarts of milk daily. This usually seems an enormous and impossible task, but by taking a glass of milk frequently, it is a very easy matter to drink this amount of milk each day.

The glass of hot milk at bed-time must never be neglected. As explained previously, it tends to prevent night sweats, to ease the cough, and ensure refreshing sleep.

CHAPTER XIX.

SOME GENERAL ADVICE IN REGARD TO FOODS FOR THE PULMONARY INVALID.

Do Not Take Food Except at Regular Hours, and Such Hours Should be Well Apart from the Hours of Exercise.

Food which one person will find extremely difficult of digestion may be taken with benefit by another, and it is therefore impossible to adopt any but the most elastic rules in ordering a special diet. The diet must be fitted to the patient and not the patient to the diet. One should not burden the digestive organs with pastries, sweet-meats and the like which yield but little nourishment. As a general rule beefsteak (broiled and quite rare) should be eaten as regularly as possible. Beefsteak, milk and eggs are the three articles of diet which will do more to maintain the invalid's strength and nutrition, than all other foods combined. Many patients in their anxiety to improve, over-do the matter of beef eating

and it soon becomes disagreeable to them. It is far better to take a moderate amount of beef and continue its use for a long time, than to overload the stomach and as a result be obliged to discontinue it for a considerable period. There are several appetizing and palatable methods of preparing beef by which the monotony may be overcome. Beefsteak scraped, and eaten in a raw state or broiled rare is a very effective way of taking it. When the beef proper cannot be taken, one can, by the aid of a *good* meat press, obtain all the juice, which contains most of the nourishment, and in this way the essential part of from two to four pounds of steak may easily be taken daily.

Next to beef and perhaps equal to it as a food is milk, and it should be taken often, at *regular intervals* during the day and evening. Should there be a tendency for it to sour in the stomach, add a little lime water. It is better that the milk be taken warm, but in most cases there is no objection to taking it cool, except that which is taken before arising in the morning, on retiring at night, and at meal times. The addition of a little sugar to a glass of warm milk, will render it much more palatable for many. Consumptive persons should take at least

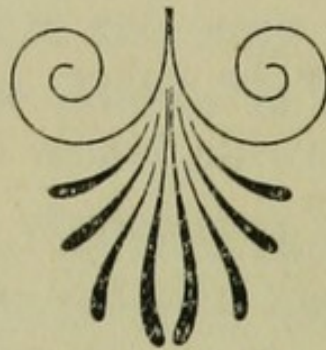
two quarts of milk each day, and many can take even more. They should drink it freely with meals, taking it in preference to tea or coffee. These latter should be avoided if one can take a plentiful supply of milk, although they are not harmful if used with moderation. The object is to TAKE, SO FAR AS IS POSSIBLE, THOSE DRINKS WHICH CONTAIN NOURISHMENT. Beef tea may be taken with advantage as a hot drink, although it does not compare with milk so far as nourishment is concerned. Also for cool drinks there are many reliable beef extracts which may be used with benefit.

Fruits can usually be taken in abundance, and much good will, as a rule, follow their use. Grapes, figs and apples are particularly valuable. Apples and grapes are very effective in increasing the weight, which fact indicates that they contain much nourishment.

Eggs, raw or cooked, according to the inclination of the patient, and the effect upon the stomach, are a valuable food and should be regularly taken.

There is much nourishment in butter and it should be eaten freely during meals. Fresh cream should also be used plentifully. Milk from which a part of the cream has been removed is relieved, of its nourish-

ing properties in proportion as the cream is taken from it, and for this reason it is well to see that you are supplied with fresh milk.



CHAPTER XX.

A SIMPLE MEANS OF PREVENTING CHILLS AND COUGHING "SPELLS."

Do Not Neglect to Take a Glass of Hot (very warm) Milk Each Morning, 15 or 20 Minutes Before Arising—This Not Only Facilitates Expectoration, Improves Digestion and Appetite, but Acts as a Nutritious Stimulant and Does Much to Prevent Morning Chills.

This subject has been touched upon in a previous chapter, but its importance entitles it to a more detailed consideration. It is far preferable for many reasons, that milk be taken in preference to any other liquids. It must be taken with regularity, otherwise no marked benefit will accrue from the method. As stated, it warms up the system; acts as a nutritious stimulant; loosens and generally facilitates expectoration, doing much to prevent severe coughing spells. All persons with pulmonary affections doubtless notice that after breakfasting there is a pronounced tendency for the lungs to expel all accumulations, which is accomplished with

greater or less effort, according to the extent of the disease and general strength. Only too frequently, the process of raising, causes much wrenching of the stomach and occasionally vomiting of their food, the necessary exertion being entirely out of proportion to the work to be accomplished. The hot drink before arising will forestall more or less completely this unpleasant and harmful procedure, as a result of which, digestion and assimilation will be more perfectly accomplished, and nearly always the appetite will be improved. During the course of pulmonary tuberculosis, the general system is so disorganized and reduced, that in the early morning it is very often unable to maintain the body heat to the normal point. This is the cause of subnormal temperature with chilliness and shivering, which continue with greater or less severity until some period of the day when a reaction occurs and fever comes on. It may be said on general principles that the lower the temperature is in the morning below the normal point ($98\frac{1}{2}$ degrees) the more persistent will be the fever later in the day. Moreover, this sub-normal temperature indicates a shattered state of the vital forces. It is therefore very important that the body heat be stimulated in the early part of the day as nearly as possible

to normal. This can be best accomplished with the hot drink, and dressing in a warm room (of a temperature of 75 degrees), as explained elsewhere. A chill in the morning is one of the most unfavorable occurrences which can happen. Some patients, in whom the chills are exceedingly persistent, may be obliged to remain in bed during the early part of the day (until after the usual period of the chill) before the condition can be relieved. If for any reason one cannot take ordinary milk, it is best to try some one of the many reliable artificial preparations of milk. Failing in all these, it is advisable to take a third of a cup of strong coffee, filled up with warm milk or cream, and sweetened to taste. This is one of the best methods of taking coffee. Tea may be taken if the others are objectionable, or a glass of hot water sipped slowly. The principal reason why milk should be used is that it contains much nourishment and for some reason seems to more powerfully assist expectoration than other drinks. A glass of hot beef tea may be taken occasionally to break the monotony. A little wine may be added to the milk if desirable, or the wine may be taken separately immediately after the milk or other drink.

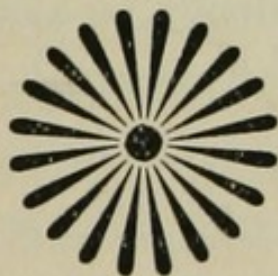
CHAPTER XXI.

PRECAUTIONS IN REGARD TO DRINKING WATER.

Do Not Take Ice Water, or Any Other Ice-cold Drink—This Precaution Must Be Strictly Observed at All Times by the Pulmonary Invalid—Ice-cold Drinks of Any Nature, Whatsoever, Can Never Be Taken With Safety During the Course of Pulmonary Consumption.

There is no objection in the majority of instances, to the pulmonary invalid drinking all the water desired, but it should be only moderately cool, and should not be taken in too large quantity at a time. In those cases where a high fever is present each day, causing much thirstiness and dryness of the throat and mouth, the use of small pieces of ice—allowing them to melt in the mouth—will give more relief than any other method. In such cases water should be given with great care. A glass of ice-water taken at meal times, will often check the process of digestion by chilling the stomach, delaying and even preventing assimilation. *Constantly bear in mind that one of your most substantial and loyal allies in your*

fight for recovery, is the maintenance of the digestive organs in the most favorable state for the performance of their respective functions. The digestive fluids, such as saliva, pepsin, pancreatin, etc., are supplied from the blood. During the course of pulmonary consumption the blood becomes more or less depraved; and the quality of these fluids, therefore, is below the normal standard, in proportion to the lowering of the quality of the blood. For this reason it is frequently necessary to administer digestive powders to assist the weakened forces of nature. Study to favor your digestive organs in every possible manner. *Good care* of the stomach is the very best digestive that can be administered.



CHAPTER XXII.

PRECAUTIONS TO BE OBSERVED BY THE PULMONARY INVALID AS REGARDS ALCOHOLIC DRINKS.

**Do Not Take Whiskies, Brandies, or Other Alcoholic Drinks,
Except During, or Very Soon After Meals.**

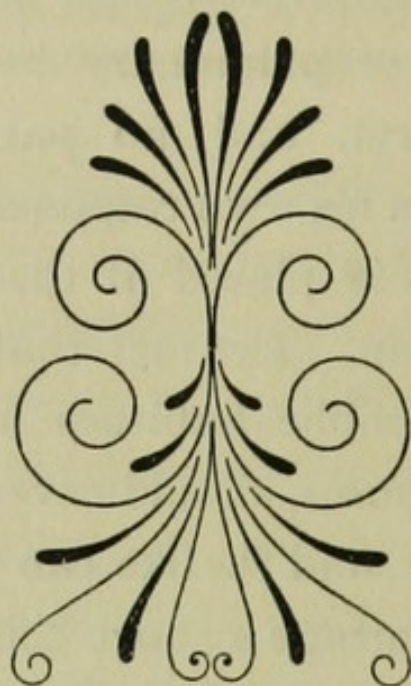
Always remember that it is only in selective cases that such beverages are admissable with the pulmonary invalid. In addition to the danger of doing harm to the invalid so far as recovery from his disease is concerned, the danger of establishing a habit must never be forgotten. In those invalids who have inherited a tendency to alcoholic inebriety, it is very doubtful if the physician is justified in employing alcoholic beverages, either as medicines or foods, in combatting tubercular disease. Pulmonary invalids should never take such beverages without professional consent.

If such fluids are taken in an empty stomach, they will act only as temporary stimulants, and the effect

is of no value whatever except as temporary stimulants. Then, too, if taken when the stomach is empty, alcoholic drinks are very liable to excite a gastritis (inflammation of the mucous membranes of the stomach), to which the stomach in pulmonary invalids is predisposed. Alcoholic beverages, if properly used, will act in the manner of food, and when this effect is desired, they should always be taken in small quantity, during or directly after meals.

— In some cases of pulmonary consumption, alcohol will do harm, and no patient should ever adopt its use upon his own responsibility. The matter should always be placed at the discretion of the attending physician. The fact that many consumptives become alcoholic habitues from using alcohol for medicinal purposes, should never be lost sight of. Beers, ales, porter, and the like, can usually be administered with advantage a short time previous to the dinner and supper hours, as such drinks are as a rule taken to stimulate an appetite and favor digestion. In some cases these last named beverages are more beneficial when taken after meals, and it is usually advisable to take them, for a time, before eating; and then, for a time, after eating; and in this manner determine definitely which yields the most satisfactory

results. One should also exercise care to obtain such beverages from reliable manufacturers as there are many inferior grades on the market.



CHAPTER XXIII.

SPECIAL CARE OF THE TEETH DURING THE COURSE OF PULMONARY CONSUMPTION.

Do Not Neglect Giving the Teeth the Best of Care—This is a Simple, though Very Important Detail in the General Management of Pulmonary Invalids.

Not only must the teeth be cleansed several times daily with warm water, but in addition, they should be cleansed with a mild antiseptic solution. When cleansing the teeth, the mouth and pharynx must be cleansed with both warm water and the antiseptic solution. It is quite unnecessary to add that antiseptics for this purpose should be of strictly vegetable composition. Many of the stronger mineral antiseptics might do the teeth permanent injury.

The teeth, mouth, and pharynx, should be subjected to thorough cleansing as often as three times a day. For this purpose one should use warm water to which has been added an agreeable and harmless antiseptic. As an antiseptic for this purpose the

preparation known as Thyminol is pleasant and efficacious. With the exception of borax it is entirely of vegetable composition, containing thymol, eucalyptol, wintergreen and menthol. In addition to its antiseptic properties, it is an excellent deodorant and is not irritating. The necessity of frequently cleansing the teeth, mouth and pharynx throughout the course of pulmonary consumption is an important, though frequently ignored, item. The nutrition of the teeth suffers in proportion to other parts of the body during this disease, but decay is held greatly in check, by thorough and regular cleansing, while the use of the antiseptic neutralizes the action of the numerous pus organisms, so abundantly present in the mouth and throat, during pulmonary tuberculosis. Thyminol possesses a very agreeable taste and odor, which effectually overcomes the offensive breath frequently resulting from chronic lung disease, and gives the mouth a refreshed sensation. One should ever be extremely careful not to allow any expectorated matter to reach the stomach, as tuberculosis of the intestines (bowel consumption), a very serious complication, and which only too frequently precludes the possibility of recovery, is very liable to originate from this source.

CHAPTER XXIV.

THE COUGH OF PULMONARY CONSUMPTION.

Do Not at Any Stage of Your Disease, Either upon Your Own Responsibility or the Advice of Others, Make Use of a "Patent Cough Syrup" for the Relief of Cough—To Suppress Cough, or Attempt to Relieve it without Removing the Cause is to Jeopardize the Prospects of Recovery.

As a rule these preparations contain an excessive amount of opium, or some of the derivatives of opium, and from the decidedly sedative effects of such drugs, a temporary cessation of distressing pulmonary symptoms may be experienced following their use. The usual outcome, however, of such indulgence (or dissipation) is a deranged stomach, loss of appetite, and an immediate return of the symptoms (which the remedy may have temporarily *suppressed*, not relieved,) as soon as the use of the preparation is discontinued. Instead of favoring recovery in the slightest respect, these syrups will seriously diminish the consumptive's

chances of restoration to health. In more than one respect "patent cough mixtures" are the scourge of consumptive patients, if such a term is admissable. Most proprietors of such remedies could not be induced to depend upon them for relief of themselves, or members of their families, to the extent that they advise others. It may seem a rather strong expression, but there can be no doubt that the percentage of recoveries from pulmonary consumption would be increased by fully one hundred per cent., if proprietary cough medicines were unknown. When first afflicted with a cough, many persons will purchase a bottle of "Dr. Blank's Expectorant," or "Dr. Blank's Consumption Cure," instead of placing their case in the care of a reputable physician. Then again, many who consult a physician at first, and fail to obtain immediate relief, become discouraged, or, for reasons of expense, resort to the "Cough Market," where they obtain relief, for the time-being at least. The tempting wrappers on the bottles proclaim for the respective cough mixtures innumerable and incredible virtues. An attempt is usually made to impress the victim, that a few bottles of the remedy will be sufficient to cure the worst form of cough. It does give *relief*, marked and imme-

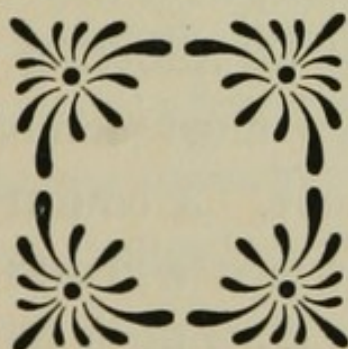
mediate relief, and this fact increases the faith of the invalid and induces him to invest further in the remedy. But while the cough is being suppressed, the tubercular processes are steadily spreading, and invading more and more lung tissue, which, by a proper course, might have been saved. The general vitality becomes less and less, until, at last, when the blanket of deception is removed, the victim appreciates his actual condition with all the pangs of hopelessness. Then it is, his flimsy castle of delusive recovery falls with a crash and buries the unfortunate being in the debris of his own credulity. The most favorable period to successfully treat his condition is gone, worse than wasted, and when a physician is earnestly consulted, the disease has passed its incipient stage. The chances lost will be difficult to reclaim. The condition may be compared with an unfortunate financial speculation, and whether or not the lost fortune can be reclaimed depends upon how completely the resources have been exhausted. Patent cough mixtures do much more harm than can be well estimated. The evil is, however, firmly rooted and cannot be easily eliminated. But the "patent cough remedies" are not responsible for all harm in this line. While

condemning them, we must not lose sight of the fact that a few physicians adopt in their practice a routine method which may be termed the "cough syrup treatment" of consumption, but happily the physicians who resort to such practice are not numerous. Either from inexperience or lack of judgment, they do not seem to appreciate in what direction to bend their energies. They apparently lose sight of the true condition, and exhaust their efforts in vain endeavors to relieve the symptoms of the disease rather than *the cause of the symptoms*. They seem to forget that the cough associated with consumption is a distinct function, a natural process, a positive necessity for the well-being of the patient. There would be as much logic in attempting to relieve the cough which accompanies consumption without removing the cause, as for the surgeon to attempt to heal a discharging sinus without first removing the internal focus of disease. In either case one would be opposing rather than assisting nature's efforts. The cough of pulmonary consumption may frequently need treatment, but such treatment should be as simple as possible, and designed only to relieve the irritant or unnecessary part of the cough. A minute examination of the

smaller air passages of the lungs shows that nature has anticipated the requirements which would fall upon the pulmonary organs, and in her wisdom has amply provided means for the elimination of abnormal or foreign substances. The whole mechanism is perfect in its equipments to resist disease invasion, and to facilitate the healing of lesions. The extent and severity of tubercular disease in the lungs, vary widely in different individuals, and in many instances it is impossible for nature's mechanism to adapt itself to the condition. The consequence is that the mechanism becomes more or less disharmonized. When the cough is in a natural condition, it accomplishes the expectoration of tubercular secretions with a minimum expenditure of energy. But if the patient is of a very nervous temperament, if the pulmonary secretions are too viscid—if there are pleuritic complications, or other disturbing influences, even though they may be in a remote part of the body, then it is that the CAUSE OF IRRITANT COUGH requires faithful and intelligent treatment. In giving relief one should endeavor to accomplish the object without disarranging other important functions, particularly those of digestion. If the expectoration is not properly eliminated from

the lungs, aside from other consequences, it will be absorbed to a greater or less extent into the general system. I think all will now thoroughly understand that all efforts should be directed to strengthen and sustain the cough, rather than to make any attempt to *suppress* it. When the cause is removed we may be quite certain that the cough will take care of itself. One of the most important and valuable functions of cough is, that in most cases, it assists in announcing the presence of pulmonary consumption at its very inception. When a person develops a hacking cough, even though very slight, he should at once find out its precise cause (see chapter on the use of the microscope). Therefore we should look upon cough as a natural function, rather than a symptom which should be suppressed and exterminated. A useless, irritant cough consumes a vast amount of much needed energy, and gives nothing in return, and it is for the relief of such condition that the use of suitable inhalations, and other simple means to relieve irritation of the air passages, and at the same time facilitate expectoration, do great good. Proper attention to diet and suitable exercises also assist in relieving irritant coughs. Do not expect any form of inhalation to kill the bacillus of

tuberculosis in the lungs and in this way bring about a healing of the disease. Such an effect would be an impossibility in true tuberculosis, for it must be remembered that consumption is not a local, but a constitutional disease, and that the most effective inhalations (except oxygen gas) cannot exert more than a local benefit. Inhalations which relieve useless coughs do much to facilitate recovery, by allowing more perfect rest at night, and by permitting the accumulation of energy which would otherwise be wasted. Energy means cell-resistance, cell-resistance is vital force, and vital force is the most powerful and effective germicide which can be arrayed in behalf of the victim of pulmonary consumption.



CHAPTER XXV.

PROPER CARE OF CHILDREN WHO HAVE INHERITED A PREDISPOSITION TO TUBERCULOSIS.

Do Not Allow Children Who Have Inherited a Predisposition to Tuberculosis to Attain Maturity under Conditions Which Will Have the Effect of Adding to their Natural Predisposition – On the Contrary They Must Be Placed Among Surroundings Which, as They Grow up Will Have the Effect of Eliminating or Neutralizing the Natural Predisposition.

Children of tubercular parents nearly always inherit a more or less marked predisposition to pulmonary disease, and the only way in which this tendency can be corrected, with any degree of certainty, and permanency, is by allowing them to grow up among surroundings most conducive to muscular and chest development. A country or suburban life is the only course which will do this. Consumptive parents should not take a farm or country residence with the intention of remaining there but a few years.

They should take such residence with the intention of remaining there the remainder of their lives, or at

least until their children have attained maturity.

A country residence will be of marked benefit to consumptive parents themselves. But they are further repaid for any inconveniences, financial or social sacrifices, which may have been necessary in order to give up city life and adopt a permanent country residence, by seeing their children growing up, strong, healthy and robust, while if they had remained in the city, these same children would have been pale, hollow-chested and sickly, with tuberculosis ever hovering about them, ready to carry them down to an untimely grave.

It is the sacred duty of all consumptive parents—those who have tuberculosis, have had tuberculosis, or who are predisposed to the disease, to place their children at as early an age as is possible, under those conditions and surroundings which promise most to increase their vitality and natural disease-resisting powers. It would not be possible for them, no matter where they resided, to escape repeated exposure to tubercular contagion, so general is its distribution, and the only security of health for such children lies in bringing the powerful forces of nature to the rescue, and overcoming the hereditary predisposition, thus creating in them a natural immunity, which is the

only safeguard against tuberculosis. It may be necessary to make many financial and social sacrifices in order to take up a permanent residence in the country, but all this counts for nothing when compared with the motive of such a movement. Precedent shows that in a family of children in whom the hereditary tendency to tuberculosis exists, one or more usually become consumptive, or suffer from some other serious constitutional disease, unless active means are taken to prevent. While all of them with the hereditary taint in their systems will transmit the same tendency to their children, if some decisive course is not taken to avert it. Ignorance or neglect of this precaution is one of the reasons for the enormous prevalence of tuberculosis. It is therefore plainly manifest that the health of future generations depends upon whether or not means are at an early age employed to eliminate the taint of heredity. The health of the consumptive's descendants is to a great extent at his disposal, and only one course remains for him to follow, and that is, to "do as he would be done by." He should not attempt to deceive himself by adopting half-way measures. It is in this way that hereditary tendencies to tuberculosis are transmitted from generation to genera-

tion, and will continue to be transmitted until the public at large thoroughly understand the causes and prevention, and then, fully appreciating the cause and effect, adopt the remedy with vigor and decision.

Consumptive parents must not be allowed to believe that drugs can eradicate from the defective constitutions of their children that which heredity has planted. The taint is too firmly rooted to be so easily eliminated. It is diffused through the blood, through the nervous system, through the bones and tissues of their bodies. It is so thoroughly disseminated that it clings to them with wonderful persistence. An abundance of fresh air, cleanliness of surroundings, plenty of sunshine, and a general observance of the laws of health, is the great and powerful remedy, before which the ever shadowing monster of tuberculosis is to be defeated and ultimately vanquished. These forces of nature which are so bountifully supplied by a generous Providence, build up the vitality to such a standard, that the bacillus of tuberculosis finds in the lungs a soil unfavorable for its maintenance and development, or, in other words, *antagonistic to its presence.*

Should consumptive parents for any reason allow their children to grow up in the city, to remain for ten months of the year in school rooms—the air of which is always more or less impure—and then, having reached maturity, allow them to follow a confining occupation, they would be sanctioning a two-fold injury, by permitting the development of an acquired tendency to tuberculosis, which, *added* to the hereditary tendency, will render them doubly susceptible to the disease. It is very plain that should consumptive parents not care to adopt a country life for their individual welfare, it is their duty to do so for the sake of their little ones. Should they already live in the country, they must insist upon their children adopting and habitually following those exercises which will insure the development of a full chest, good lung capacity, as well as a substantial general muscular development. Country life properly followed is the one great and reliable antidote for tuberculosis; for the hereditary tendency; for the incipiency of the disease, and even for its active state. It neutralizes the poison of the disease with much the same certainty as definite chemicals neutralize certain poisons.

CHAPTER XXVI.

GENERAL PRECAUTIONS TO BE OBSERVED TO PROTECT CHILDREN FROM TUBERCULAR INFECTION.

Do Not Allow Tubercular Infection to Reach Young Children Through the Medium of Foods, Particularly Milk.

So long as the government does not appoint and maintain inspectors of dairies and stock-yards for the purpose of eliminating all tubercular cattle, the public at large must take precautions to protect themselves from the well-established danger from these sources. Probably only a very small percentage of meats and milk contain tubercular infection to a dangerous degree, but so long as that small percentage finds its way to the markets, everyone alike is exposed, and therefore everyone should constantly maintain precautions to destroy such contagion. Its complete destruction is so easily and readily accomplished that all, with but slight inconvenience, can enjoy perfect immunity from this source. In view of the frequency with which

tuberculosis is found among milch cows, it is far safer, especially for the use of children, who, as a rule, are much more susceptible to tubercular infection in milk than adults, especially those who have inherited a predisposition to consumption—that all milk intended for their use be thoroughly boiled. Simply bringing milk to the boiling point will not destroy tubercular infection. It must be BOILED FOR A FEW MINUTES, which will do it no harm so far as its qualities as a food are concerned. All meats should also be thoroughly cooked. That children are far more susceptible to infection from food, is proved by the numerous cases of tubercular peritonitis, tubercular meningitis and tubercular diseases of the joints, such as “white swelling.” All cases of this nature, of course, do not originate from the use of infected meats and milk, but so many instances are recorded from authentic sources, where such affections have been directly traced to this origin, that it is advisable to make use of such precautions as are possible in this direction.

A mother who is at all consumptive should never nurse her child, for, on account of her impaired health, such food does not contain a normal percentage of nourishment, and, moreover, is

liable to contain tubercle bacilli. As a result of inferior nourishment the child grows up of a delicate constitution, and it is quite possible that some of the supposed errors of heredity are due to this cause—mal-nutrition in infancy, thus laying the foundation of a faulty constitution.

Children must be given special care after attacks of whooping cough, measles and pneumonia. Very frequently persistent coughs follow attacks of these diseases, and lay the foundation to future pulmonary disease. There are still other sources of danger to children. The author once had under his care a consumptive lady who was notoriously careless as regards destruction of infection arising from her disease. She was the mother of two small children. Being unable to attend to her shopping, she sent to one of the large stores and obtained a selection of bonnets for her little ones, which remained about the house for a day before being returned to the store. It happened they were all returned, as none of them proved satisfactory. It would seem that all of these bonnets must have been more or less dangerously infected with virulent tubercular infection, and in this way the children who finally wore the bonnets would be exposed to tuber-

culosis. What is true in this case might be in the case of other contagious diseases, and it would seem the duty of health officers to put a stop to such dangerous practices. But until the health officers take a hand in the matter, it is the duty of the proprietors not to send clothing or other articles out of their stores on trial, unless assured that the home to which they are going is perfectly free from contagious disease. Then, too, it is the moral duty of persons affected with contagious disease not to allow such materials to be brought into their homes on trial.



CHAPTER XXVII.

THE IMPORTANCE OF MICROSCOPICAL EXAMINATIONS OF EXPECTORATED MATERIAL, AS CONCERNS THE PULMONARY INVALID.

**Do Not Permit the Omission of Microscopical Examinations,
Either as Regards the Diagnosis of Your Case, or the
Ascertaining as to Whether Your Cure is Complete.**

It does not matter how expert the physician may be, either as regards physical examinations of the chest, or the analysing of the various symptoms associated with the incipient or convalescent stages of pulmonary consumption, it is impossible for him to say definitely that a given case is, or is not pulmonary tuberculosis, without the assistance of microscopical examinations. It is equally impossible for him to pronounce the complete cure of a given case of pulmonary tuberculosis, without the aid of microscopical examinations.

In these days of practical bacteriology, there is no excuse for the omission of microscopical examinations to assist in determining the presence or absence of

tubercular disease of the lungs or throat. If the family physician does not possess facilities for skillfully performing such examinations, or has not the time to devote to the details of the work, he should advise the sending of specimens of the expectoration to some competent bacteriologist. Microscopical examinations are of the greatest value in confirming the diagnosis of pulmonary consumption, and in determining when the bacilli have disappeared, for no case can be pronounced cured, no matter how completely the symptoms may have been relieved, until the bacilli are entirely absent from the sputum. The diagnosis of pulmonary consumption in its very incipiency, is frequently quite a difficult matter, and in some instances impossible without the aid of the microscope. But as this stage offers the most favorable opportunities for rapid and permanent recovery, it is imperative that all obstacles be surmounted, and a positive diagnosis rendered at the earliest possible date.

Usually, at the inception of pulmonary tuberculosis, there will be a marked depression of general vitality, which permits the development of many confusing symptoms. These secondary disorders, particularly of the digestive organs, may give rise to such painful

and persistent symptoms as to deceive, not only the patient but the physician as well. The predominance of such symptoms are very liable to detract attention from the constitutional condition, and tend to establish the belief that the disease is only a local one. But while all energies are being concentrated upon the relief of these various secondary symptoms, the tubercular processes, so limited at first perhaps as to escape observation, are continuing to spread, and when their presence from physical examination is positively established, the disease is quite advanced.

Therefore, when there is a failure of general health, with loss of flesh, accompanied by various obscure symptoms, if a definite diagnosis cannot be established, it is at least well to know positively THAT THE CONDITION IS NOT DUE TO THE PRESENCE OF INCIPIENT TUBERCULOSIS, particularly if the individual is predisposed to tubercular disease. If the true cause of the condition cannot be located, it is better to have the possibility of tuberculosis excluded, than to leave the slightest doubt upon this part of the question. One should not be satisfied with the assurance that his "lungs are only weak," that he has a "bronchial trouble" or that he is "threatened with pulmonary disease," unless such assertions are sustained by com-

petent microscopical tests. The physician is very apt to deceive himself, if he does not utilize every possible means within his reach which will assist in a scientific solution of the question. Mistakes of such nature are liable at some later date to reflect upon the physician's integrity, skill, or possibly both. From three to five microscopical examinations, together with a record of the weight, temperature, (a record of the body temperature for a period of two weeks is in some of the more obscure cases, of the greatest diagnostic value. The "temperature test" for the detection of incipient tuberculosis is described in detail in an advanced chapter), and pulse, continued for a period of two weeks at least, will clear up all doubts for the time being, so far as the presence or absence of tuberculosis is concerned, and moreover, will bring forth valuable information which may unearth the true condition and perhaps be the means of saving the life of the patient.

The patient should, in every instance, be given the benefit of the doubt, and in the presence of suspicion, if a definite diagnosis cannot be arrived at, even though positive proof of pulmonary consumption is lacking, he should be treated and managed as thoroughly and as rigidly as though a final diagnosis of

tuberculosis had been made. Any hesitation, or the adoption of a "conservative treatment," while awaiting developments, is a great injustice to the patient. In this matter of life or death, all scruples should be laid aside, for the practitioner has no right to exercise a peculiar opinion of his own, which may possibly work to the disadvantage of his charge.

There are few persons who wish to believe they have contracted consumption, and many will request their physician not to inform them should evidences of tuberculosis be discovered. With due allowance for sentiment, it cannot be said that such action on the part of the patient is to be encouraged, as it cannot possibly yield any advantage, and is quite certain to be productive of harm.

There are many who will cling tenaciously to barren hopes, even though by so doing they realize that they are needlessly sacrificing their chances of recovery. So that there are two sides of the question to be considered. The physician oftentimes is not at fault for withholding the verdict of consumption, and allowing himself to pursue a course which is against his professional judgment, in order that he may gratify the morbid whims of his unfortunate consultant. Though it is well for the physician to

remember he will certainly be held responsible, later on, for permitting such indulgence, whether or not the fault is his. It is after this matter that fatal errors are made; errors which could and should be eliminated, as they cost the lives of thousands of persons who might otherwise regain health.

If tubercle bacilli are found in three specimens of expectoration, collected on different days, there can then remain no doubt as to the nature of the disease, even in the absence of many important symptoms, which are generally considered essential to a positive diagnosis. The findings of the microscope will nearly always be obtainable a considerable time before the development of positive physical signs. Again, should there be convincing symptoms of consumption, the absence of tubercle bacilli would not be positive proof that the disease was not of tubercular nature, as there are accidents which may prevent the demonstration of the bacilli. This remark may seem a little confusing, in view of what has been said. Fortunately, however, it is very rarely that this exception comes up for consideration. From three to five microscopical examinations should be made before it should be pronounced that bacilli are positively absent from the

lung tissue. In nearly all cases the microscope will settle all doubts as to the presence or absence of incipient pulmonary tuberculosis. If with the microscopical tests the "temperature test," as described in an advanced chapter, is skillfully and thoroughly applied, the diagnosis of the case, so far as tuberculosis is concerned, will be assured beyond any possibility of mistake.

Many a case of incipient tuberculosis has been diagnosed as a bronchial affection, and treated as such, to the extent that the patient has gone to the grave, and his family has supposed his demise due to bronchial disease, pure and simple. Accurate microscopical examinations would have exposed the mistake, led to a correct diagnosis, a different mode of treatment and management, and perhaps have saved the life of the patient. The contagion that such persons unconsciously scatter is also entitled to prominent consideration, and should be an additional incentive to an expert diagnosis in all suspected cases:—all cases where there exists persistent cough, and in all cases in which there is a general failure of the health, with or without apparent cause. The following are the accidents which may prevent the demonstration of tubercle bacilli in the

pulmonary secretions of those with genuine tubercular disease: The tubercular processes may be very limited, giving off only a very small amount of exudations, which may become so diluted in the secretions of the bronchial passages, and the throat, as to render the detection of bacilli extremely difficult. There are, however, methods for condensing the sputum, thus obviating mistakes which might otherwise occur from this source. Secondly:—The patient often collects secretions from the throat and larger air passages which have not come from the real focus of disease, and must, therefore, give negative results. As errors are liable to occur in making the microscopical examinations which are to assist in deciding whether the case is one of pulmonary consumption, so are they liable to occur in the microscopical examinations which are to decide whether the bacilli have been entirely eliminated from the system,—to decide whether the patient is actually cured, and the only safe way is to make several examinations (if necessary). But when, in addition to the demonstrations of the microscope, the physician considers the general symptoms, the findings of the “temperature test,” heart action, etc., and the physical signs as indicated by chest examina-

tion, there is but little chance of error in pronouncing a diagnosis, as well as announcing a cure, if proper care is exercised. Happily, there are but few physicians who would intentionally deceive any patient in the slightest detail, either as regards the diagnosis or the pronouncing of a cure, particularly when dealing with pulmonary consumption. All cases of SUSPECTED TUBERCULOSIS should rigidly follow the rules which provide for the destruction of all expectoration, and should be as thorough in such respects as those in whom a positive diagnosis has been made. In conclusion, I would strongly urge the employment of the microscope and the "temperature test" in each and every case in which there exists the slightest suspicions of pulmonary tuberculosis.



CHAPTER XXVIII.

OCCUPATIONS FOR PULMONARY INVALIDS BOTH DURING AND AFTER CONVALESCENCE.

Do Not at Any Time During the Course of Your Disease, or Even After Recovery Has Seemed Assured, Attempt to Follow an Indoor Occupation, or Any Occupation, Whatsoever, Which Predisposes to Pulmonary Weakness.

It makes no difference how mild his affection may apparently be, an occupation requiring the pulmonary invalid to remain indoors much of the time will reduce general vitality, and, as a result, the lungs will have less resisting power against extension of the tubercular disease. In other words the following of an indoor occupation, at any stage of his disease will weaken the pulmonary invalid's line of battle against his ever alert and aggressive enemies (the tubercle bacilli). After having recovered his health, the "ex-pulmonary invalid" must not for many years, and, better, never, follow an occupation which will keep him much confined. It does not matter how perfect his cure may

appear, he can never become so strong and well but that he will be subject to a relapse if he does not maintain his general vitality to the highest possible standard. Of all occupations in the world that of *light* farming or gardening is most conducive to the elimination of tubercular tendencies. Vitiated air has a peculiar affinity for vitality, which it absorbs most greedily from those most in need of it. This sentence applies to the sleeping in poorly ventilated rooms and to indoor work.

Persons of wealth need not consider the question of occupation, as such invalids are at liberty to spend their years as they choose. But so comparatively few invalids are assured of incomes sufficient to maintain their living expenses without personal effort, that the question of employment, both during the active course of pulmonary disease and following convalescence, is a very general and important one. The permanency of recovery from pulmonary consumption depends almost entirely upon the kind of employment and place of residence chosen by the convalesced invalid. Indoor occupations offer a minimum of muscular exertion, and for this reason, are, as a rule, eagerly sought after by persons not of strong constitution. But this is a fatal error, and many

indeed are the short sighted victims. The temptation to do indoor work may be quite irresistible, but he who resists is the ultimate victor. The pulmonary invalid, both during the active stages of his disease, and after convalescence, may have excellent positions offered him,—opportunities which come but once in a life time, but should the duties of such positions necessitate much confinement on his part, it is his moral obligation to himself, and to his family, to refuse them. Such occupation, is to him, deadly poison in disguise. Occupations maintained at the expense of health, will ultimately lead to disastrous terminations. Always bear in mind that good health is the greatest wealth this world offers. By far the best occupation for a person,—man, woman or youth, who has had consumption, is LIGHT FARM OR GARDEN WORK. And this statement applies as well to those who have an hereditary tendency to tuberculosis and even to many with the disease in an active state. In fact such an occupation is the great antagonist of tuberculosis:—It is its arch enemy.

There are certain definite and peculiar advantages to be derived from working the soil, which cannot be duplicated or imitated by any other occupation or mode of living. Those who are very weak, or those

who have a tendency to high fever, rapid pulse, and rapid waste of the body, must pursue such exercises with great caution and moderation, and always under the advice of a physician. The effect of such exertion must be carefully and intelligently studied, and the extent of activity gauged by the effects. If the practice causes the temperature to rise decidedly higher than is usual, or the pulse to beat much more rapidly; if an unnatural fatigue results, a fatigue from which the invalid does not readily recover, and which imparts a feeling of exhaustion, then it is advisable that active exercise be discontinued, until it can be followed without unpleasant after-effects.

In such cases, simply getting out in the garden and *digging a hole in the ground* with a hand trowel, will be of great benefit, and will do much to improve the general vitality. There certainly are no medicines or other means whatsoever, which will do as much to stimulate an appetite, invigorate the system, and in a general way facilitate recovery as such open air life in the garden. The peculiar emanations which arise from the fresh country soil, have, in themselves, positive medicinal and healing properties. The same cannot be said of the soil in the large cities which seems permeated with unhealthy gases and which,

as observed along fresh excavations. frequently gives rise to malaria. The advice here given applies to farmers as well as others, but as consumption is comparatively rare among country people, it will find a larger audience among those following other occupations. People are apt to neglect, or overlook that which is common to them, no matter how efficacious it may be, and therefore we would expect farmers to make the mistake of neglecting this exercise while following out any regular treatment.

In choosing a location for country life, persons should select a home in the climate in which they expect to PERMANENTLY REMAIN. A location should be selected which is free from fogs and malarial influences. Hill land is greatly superior to valleys or lowlands. An elevation of from one to two thousand feet above sea level is a very good altitude.

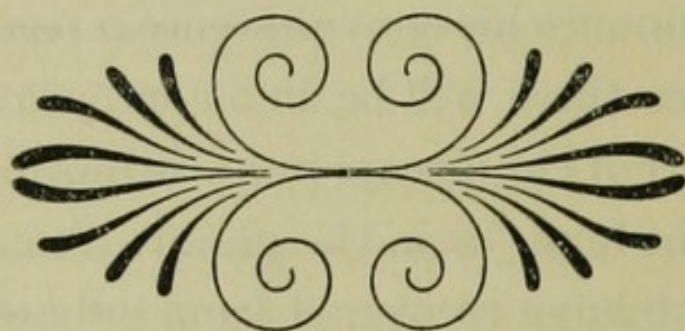
The question as to when a cure of pulmonary tuberculosis has been effected is a complicated one. And this leads us to the question: What constitutes a cure from pulmonary consumption? Does the cessation of all active symptoms of the disease together with a reconstruction to the normal point of the physical being constitute in their entirety,

what is known as recovery? Yes and no. If the convalesced invalid adopts a mode of life suited to the maintainance of his regained physical well being, and studies not to expose himself in the least degree to the conditions or surroundings, under the influence of which his disease was originally contracted or induced, and in fact adopts, so far as is within his power, a physical management which is most conducive to the permanency of his regained health, then we may call the disappearance of symptoms and the various conditions associated with the disease, a recovery.

But, on the contrary, if he pursues an opposite mode of life, if he is a careless, thoughtless, reckless individual, and exposes himself to conditions which ordinarily predispose to pulmonary disease, then we cannot pronounce his convalescence a recovery. For in most cases there will be, in a comparatively short time, a return of the disease in a still more aggravated form. In the lungs or in the glands about the lungs of those who have recovered from pulmonary tuberculosis, there will remain in a dormant state for years, and possibly throughout life, virulent tubercle bacilli, encapsuled and inert so long as the surrounding tissues possess a sufficient vitality to resist or

antagonize any extension on the part of these organisms.

Should the ex-patient place himself in a medium which would allow of a diminution of his vital powers below a certain limit, then there would be nothing to prevent a multiplication and extension of these otherwise dormant germs. This explains why relapses are so frequent in those in whom permanent recovery has seemed assured. The fact that former disease has paved the way, admits of a more rapid and serious extension than the original affection, and a return to health more difficult to effect.



CHAPTER XXIX.

“SOCIETY LIFE” AND RECOVERY FROM PULMONARY TUBERCULOSIS.

Do Not, Under Any Circumstances, Attempt to Assume the Duties of a Society Person. Even in the Mildest Cases of Pulmonary Consumption it is Inadmissible for the Invalid to Follow a “Society Life.”

The various demands constantly made upon these individuals who are considered “society” persons, would be extremely disastrous to the invalid, and might of itself induce a fatal termination, when recovery would otherwise have taken place.

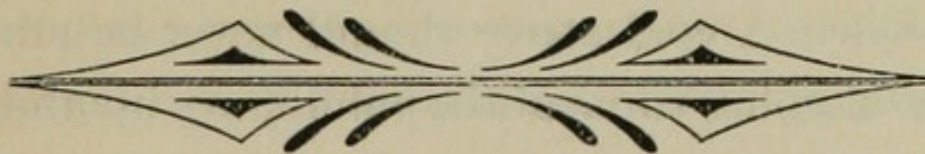
As soon as a person becomes aware that he has a consumptive trouble, no matter how mild it may be, he should make immediate arrangements to discontinue attendance upon what is commonly understood as social life. By this the author refers to attendance upon balls, receptions, theatres and the like. It is not necessary that one should lead the life of a recluse, but a “society life” would detract to such an extent from the general well being of the pulmonary

invalid as to render satisfactory treatment quite impossible. This remark applies more particularly to the gentler sex, although, so far as countermanding participation in social affairs, it applies equally strictly to gentlemen.

Many healthy persons have laid the foundation of tubercular disease by allowing themselves to become slaves of fashion and society. The fatigue, nervous strain and general enervation attendant upon those who regularly attend the festivities of social life, are quite sufficient to absorb and undermine the constitution and vitality, and so pave the way to serious disease. Everyone can see that a course which predisposes to deterioration of health in a strong person, would be ruinous for a weak person or invalid. It is quite unnecessary to go into further details as to why one should deny himself or herself the pleasures of "society." Perhaps one of the reasons why consumption is so comparatively rare among country people, is, that social life, as practiced in the cities, is quite unknown among them. The life of a consumptive, who expects to recover, is necessarily one of self-denial and self-consideration. In order to successfully combat such disease the invalid must make many sacrifices which will cost a severe

struggle at the time, but which will certainly yield compound interest in return. It is constantly evident that investments of self-denial pay handsomely.

It may be justly said that if pulmonary invalids permit themselves to indulge in the various indiscretions necessarily attendant upon social life, they are mortgaging their chances of recovery at a usurious rate of interest. It is not suggested that the invalid lead a life of seclusion and solitude, for such would not be conducive to recovery. Every reasonable means should be utilized to avoid mental depression, and the ingenuity of the attendants and friends of the invalid should ever be on the alert to keep the sick one's mental condition cheerful and hopeful. The most pleasing and amusing entertainments may be derived from quiet home life, if one only determines upon such a course. Quiet home amusements are in themselves conducive to recovery.



CHAPTER XXX.

ADVICE IN REGARD TO PROPER HEATING OF THE INVALID'S SLEEPING AND DRESSING ROOMS.

Do Not Retire for the Night or Dress in the Morning in a Room Which is Cold, or Even Chilly—Never Disrobe at Night or Arise in the Morning in a Room the Temperature of Which is Less than 75 Degrees.

One should take great care not to become chilled *at any time*, but much greater importance attaches to avoiding chills during the early morning hours and during the evening than any other part of the twenty-four hours. If possible, the sleeping room of the pulmonary invalid should be equipped with a fire place, but if this cannot be had, an ordinary wood stove should be obtained, preferably of the open grate style. A coal stove should never be admitted into the sleeping room of the pulmonary invalid. Nor should an attempt ever be made to heat the invalid's apartment from a stove in an adjoining room. The proper warming of the sleeping room is an important

item in general management, and should never be relegated to secondary consideration, as is often the case.

During the entire year, summers as well as winters, (for the air is often cool and damp during the summer months), a wood fire should be started in the invalid's room from half to three-quarters of an hour (depending somewhat on the time of year) before he retires for the night and for the same length of time in the morning before arising. A pulmonary invalid should not disrobe, or dress, in a room the temperature of which is less than seventy-five degrees.

Many houses are heated with hot water, steam, or furnace, but it is better to turn off such heat in the sleeping room and depend entirely upon the wood stove. Of the three modes of heating—steam, hot water and furnace—that of the furnace is unquestionably superior, from a sanitary point of view, as it insures a constant circulation of air. It is never advisable for the pulmonary invalid to sleep in a warm room, as such a course would have the effect of rendering him much more sensitive to atmospheric changes as well as more susceptible to colds.

In addition to the precaution of dressing and retiring only in a warm room as a means of preventing

chills, the invalid must never neglect the taking of a glass of hot milk each morning (see Chapter XX) a few minutes before getting out of bed and each evening a short time before retiring. Aside from its nourishing properties the hot milk will greatly assist expectoration, which is oftentimes so difficult in the morning. Moreover, by stimulating expectoration, coughing paroxysms will be prevented. All these benefits are derived in addition to the main object of taking the milk, namely: warming up the body and rendering the system more resisting to chilling influences. A little sugar added to the hot milk will render it much more agreeable to many. If for any reason ordinary milk is obnoxious one can substitute with some one the many reliable artificial preparations of milk. *Cold* milk has little or no effect upon cough or expectoration.

Always bathe in warm water, using the antiseptic wash for the mouth and teeth. In *very exceptional* instances bathing in cold water will be agreeable and beneficial, but such cases are so rare and such procedure so productive of harm in most pulmonary invalids, that one should be quite certain of the reaction before adopting such a course. A physician must exercise his selective genius in extreme, before advis-

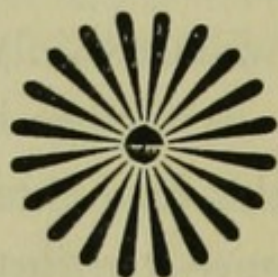
ing phthisical patients to take cold baths, and no person should adopt such a course without positive advice from his physician.

By protecting one's self from chills or even from slight chilly sensations in the morning, much will have been done to prevent a rise of fever later in the day. If one is subject to periodical chills, which is very commonly the case during the course of pulmonary consumption, they can nearly always be broken up by following these precautions. Should their occurrence still persist it is advisable to repeat the glass of hot milk to which has been added a tablespoonful of whiskey, about twenty or thirty minutes before the usual period of the chill.

The necessity of getting into a warm bed *with a warm body* when retiring for the night is of prime importance. Such a course may prevent a night sweat and moreover will certainly ensure better and more refreshing sleep. After the invalid is comfortably settled for the night, his attendant must arrange the windows for proper ventilation and allow the fire in the stove to burn out. If other means for heating are used the heat must be turned completely off. Patients oftentimes require some persuasion to adopt this whole procedure, which may seem a little

complicated, but in reality is not. Once properly instituted, however, the benefits accruing from the management will be so apparent that it will never be neglected.

The author has so frequently observed injurious effects, more or less permanent, to follow recurrent chilling of the body, even though the chills were apparently slight that he cannot commend the plan too strongly. By following it intelligently and systematically, the invalid will be doing more than he imagines to assist recovery. For further information relative to the general management of the sleeping room, the reader is referred to Chapter XI.



CHAPTER XXXI.

THE IMPORTANCE TO THE PULMONARY INVALID OF KEEPING A CORRECT AND SYSTEMATIC RECORD OF THE BODY WEIGHT.

Do Not Neglect the Keeping of a Correct Record of Your Body Weight—Watch Your Weight Closely, and if You Are Losing, or Even if You Are Not Gaining, Try and Find the Reason for It.

The keeping of a *correct* and *systematic semi-daily* record of the body weight, is one of the *important* details in the general management of the pulmonary invalid. No consumptive is in reality progressing towards recovery, no matter how favorable may be his symptoms, if such apparent improvement is not accompanied with a gain of body weight.

So long as the body weight is on the decrease, actual recovery cannot progress.

Therefore, a decided gain in body weight should be looked upon as very favorable. Even though the increase in weight is not much, if there is a *little* gain, it indicates that the constitutional waste is under

control. To keep up a steady gain in weight should be one of the chief efforts.

There will be a considerable difference (from one to two pounds) between morning and afternoon weight, and it will also vary according to the heaviness of the clothing. Thus it is easy to make a mistake of several pounds, and these precautions should be borne in mind when taking the weight. In order to keep an accurate record of the weight, it should be taken *twice* each day at *certain* hours, the best periods being about one hour after the mid-day meal and one hour after the morning meal. At the end of each week an average should be taken and compared with the averages of previous weeks. Averages should also be made at the end of each calendar month. This method will show beyond any doubt, or possibility of deception, whether the body weight is increasing or diminishing. Desultory and unsystematic records of the weight, taken without reference to the time of day, or amount of clothing worn, are of no use whatever, and very often are misleading. As a rule, when a consumptive patient reports to a physician for a first examination and diagnosis, he will report a loss of weight of from ten to twenty-five pounds, with the decrease still in

progress. One of the first objects of the physician is to check this progressive waste, and as soon as possible institute a process of tissue repair. This is usually accomplished by stimulating the appetite, increasing the digestive and assimilative powers, administering nutritive preparations and advising a general management for the individual which shall be conducive to reconstruction. It is very necessary that the progressive diminution of flesh be immediately checked, that lost tissue be reclaimed as rapidly as possible, and the weight increased to the normal point.

By consulting his weight records, the patient can see for himself whether reconstruction or progressive waste is taking place. Should it be the latter, he is in position to appreciate the seriousness of his condition, and can put forth additional exertion and co-operate with his physician the more thoroughly, in order to effect a reverse of the condition. The weight is in reality the patient's thermometer of his physical condition, and a very reliable one indeed. When the weight is substantially increasing from week to week, and month to month, one may feel satisfied that the tubercular processes are not extending, and that in all probability they are retrograding and healing in a substantial manner. This means that the disease

is under control, and that if such control can be maintained for a sufficient length of time—varying in different individuals, and also according to the stage of the disease—a *permanent* recovery will take place. Normal body weight with a good quality of flesh is the foundation of recovery in all cases of pulmonary disease.

How to check progressive tissue waste, and regain that which has already been wasted, is oftentimes a serious question to the physician, for it is impossible for the invalid to permanently regain health until the tendency to tissue waste is overcome. High fever is destructive to the tissues and blood and for this reason every effort should be made to keep the temperature as nearly normal as possible. This should not be accomplished by drugs. It can and should be accomplished by *scientific* management.

In this work the author has given special detail to those departments relative to control of the fever, and the nourishment of the body. Chills are productive of fever, and he has shown how, by proper management, chills may be prevented without the use of drugs. Improper exercise is productive of fever and body waste, and the author has therefore

given considerable detail to the chapters on general exercise.

There is a definite science in taking proper foods at proper hours of the day, and the author has given general instructions, which, if faithfully utilized, will indicate to a certainty what period of the day is best adapted in each individual case to the digestion and assimilation of nourishment. It must ever be borne in mind that pulmonary invalids not only vary widely in the nature and extent of their disease, but their natural peculiarities must also be taken into consideration. Each invalid is a special study of himself. Appreciating this, the author has not laid down rules expecting them to apply equally in all cases, but rather has endeavored to give uncomplicated general instructions, so that each individual case may be perfectly analyzed. He has also endeavored to show, particularly, how the invalid can lend valuable assistance to his medical adviser, in the various details of the management. The more interest manifested by the invalid, the better the chances of recovery. Also the more thoughtful the invalid the better the chances of recovery, as he is then more capable of rendering reliable co-operation with his physician.

CHAPTER XXXII.

THE VALUE OF A SYSTEMATIC PULSE RECORD IN THE GENERAL MANAGEMENT OF THE PUL- MONARY INVALID.

**Do Not Neglect to Keep a Correct and Systematic Record of
the Pulse, in Accordance with the Record Chart.**

The pulse must be recorded at the same hours the temperature is taken, as provided in the Record Chart. As in the case of fever, the pulmonary invalid must study to regulate his general movements to a point which will yield the best average pulse rate.

The taking of the pulse is very easily performed. For the benefit of those invalids who do not thoroughly understand how to take the pulse, it will be necessary to state here, that the *radial artery*, from which the pulse is most easily and most commonly taken, is on the *thumb side* of the wrist. The pulse can be felt most distinctly over this artery, about one inch *above* the wrist joint. By placing three fingers, usually the first, second and third, *along* the

artery, taking care not to press too hard, the pulse will be most distinctly felt.

There will be a considerable difference in the rapidity of the pulse beat according as to whether the invalid is *lying down, sitting* or *standing*, also according as to whether he has within a short time been taking active physical exercise. These facts must always be borne in mind, else the pulse record, from day to day, will not be consistent with the true condition. While such variations would be comparatively slight in a healthy person, in the invalid they would be very considerable. In order, therefore, for the pulmonary invalid to obtain a reliable pulse record, he must maintain *complete* body rest for at least *fifteen minutes*, and better longer, before recording the pulse. The invalid must also make a regular practice of taking the pulse beats while he is either lying, sitting or standing. Taking them one time when he is lying down, and the next time when he is sitting or standing will give unreliable results. Further, it is better when taking the pulse, to count through three or four minutes in order to obviate any mistakes.

In a general way, it may be said, that an extremely rapid pulse associated with pulmonary consumption, indicates quite extensive involvement of lung tissue,

a rapid form of the disease, or, possibly both. A slow pulse, not easily excited, would indicate a limited involvement of lung tissue, and further that the disease was not of a rapid nature. Therefore, a slow and not easily excitable pulse should be interpreted as a very favorable indication. As the invalid studies by suitable *general management* to keep his temperature as near the normal mark as possible, so must he study to maintain his heart action, as nearly as possible, to the normal mark, 72 per minute. It is *never* advisable to use "heart tonics" in any form, whatsoever, to strengthen the heart action during a course of pulmonary tuberculosis. Such remedies cannot possibly exert more than a very temporary control, and as soon as discontinued, the heart action would become as rapid, feeble, and excitable as ever, if not more so. Moreover, while their use is continued, heart remedies hide the true condition of the heart. This exposes the invalid to much harm.

In those cases of pulmonary tuberculosis where the pulse shows a pronounced tendency to be rapid, feeble and excitable, which in itself indicates that the general constitution is in a serious condition, the invalid must *regulate his physical movements to a point consistent with his physical strength* and general

condition of the heart. He must constantly bear in mind that any considerable physical exertions will greatly increase the rapidity of the pulse beat. It may be necessary when the heart action is rapid, feeble and excitable, that the invalid discontinue physical exercise entirely, and adopt the Rest Treatment. Each and every heart beat, above normal, absorbs energy from the general constitution, and therefore the more rapid the heart beats above the normal point, the more force must be supplied that organ from the general system. As the energy and force so used will have the effect of depleting the general vitality, it is very important that a method of management be adopted which will maintain the heart beats as nearly as possible to the normal mark. Here the Rest Treatment will save the heart an immense amount of unnecessary work. In favor of the Rest Treatment it may be well to show mathematically some of the good it will accomplish. Each and every heart beat above the normal uses up physical energy, and gives nothing in return. It is very common to find the pulse ranging from 112 to 124 in pulmonary invalids walking about. The Rest Treatment will have the effect of bringing a pulse of such rapidity down to 80 or 85, and possibly better.

Thus the heart would be saved about 35 beats per minute, or about 2,100 beats per hour. These 2,100 heart beats would absorb from the general system an immense amount of physical energy, to say nothing of the "wear and tear" upon the heart itself. We are here considering the effects of the Rest Treatment only so far as the heart action is concerned. But it must be remembered that this is but one of many favorable effects. It may be interesting for the pulmonary invalid to understand precisely the cause of his rapid pulse. First, a weakened condition of the *muscles* of the heart; second, a weakened condition of the *nerves* governing the heart action; thus the heart not only lacks muscular force, but nerve force as well.

Usually in the very incipient stages of pulmonary tuberculosis, the blood is considerably below the normal standard. As the disease advances the blood becomes more and more deteriorated. The red corpuscles become diminished in actual number, and greatly deteriorated in quality.

As the oxygen carrying powers of the blood depend upon the red blood corpuscles, it will be readily understood that, as the blood becomes depraved, its oxygen carrying powers are greatly dimin-

ished. Therefore, it is unable to carry a sufficient amount of oxygen to the tissues of the body to keep them vitalized, and at the same time, to remove the waste products. As the oxygen carrying powers of the blood become diminished, so are its nourishing carrying powers diminished, and therefore, the entire muscular system of the body suffers in proportion as the blood becomes deteriorated. The muscular structure of the heart suffers *in common and in about the same proportion* with the various muscular structures of the body, and for this reason the heart action is a good thermometer of the actual condition of the general muscular system. As the muscles of the limbs diminish in size and quality, so do the muscles of the heart. Thus it would seem that the nearer the normal point the blood can be maintained, the less damage would be done the general system during the course of pulmonary consumption. From the very beginning of the disease every possible effort should be made to prevent the blood from becoming deteriorated, and with the knowledge as to *what* induces the depraved condition of the blood, we are in a better position to treat the condition.

The most important functions of the blood are:

It conveys oxygen, and the materials necessary for the maintenance of nutrition, to all parts of the body. It conveys waste products to the excretory organs for elimination, as the excretory glands of the skin eliminate materials, which, if retained in the system, would be very injurious. (See Chapter on Night Sweats.) The secretory glands derive from the blood the digestive secretions, saliva, pepsin, etc. As the blood deteriorates it fails to supply a proper quality of digestive agents, which, to some extent, explains why digestive troubles are so common to the pulmonary invalid.

The fever of pulmonary tuberculosis is, in itself, destructive to the blood cells. Then too, the higher the fever of tuberculosis the more active are the tubercle bacilli, with the consequent formation of toxines. The more active the bacilli, the more toxines, or, as they are sometimes known, ptomaines are formed, which in themselves are destructive to the blood. Then too, the fever interferes with digestion and assimilation, thus depriving the blood of nutriment. Thus it will be seen that the control of the fever (*not by the use of drugs*) is the *key note* to reconstruction of the blood. And reconstruction of the blood is the *key note* to reconstruction of the general constitution.

CHAPTER XXXIII.

THE IMPORTANCE TO THE PULMONARY INVALID OF A SYSTEMATIC RECORD OF THE BODY TEMPERATURE.

**Do Not Neglect to Keep a Record of Your Body Temperature,
in Accordance with the Requirements of the Record
Chart, During the Entire Course of Your Disease.**

With a SELF-REGISTERING fever thermometer, the pulmonary invalid can easily keep an accurate record of his temperature. The physician should personally select a reliable thermometer for his patient. The temperature should be taken from under the tongue, and the thermometer should be allowed to remain in position fully five minutes, keeping the lips tightly closed during the time.

The normal blood heat is $98\frac{1}{2}$ degrees Fahrenheit, although it may at times be one degree less ($97\frac{1}{2}$), but very rarely one degree more ($99\frac{1}{2}$) and still be within normal limits. The temperature varies *slightly* in different persons. The cold of winter and heat of summer also cause unimportant alterations.

The fever thermometer is an invaluable instrument to assist in diagnosing pulmonary consumption, and giving definite information as to the most effective course to pursue in the treatment of such cases. When there is a failure of general health and pulmonary tuberculosis is suspected, a record of the temperature, in accordance with the Record Chart, will give much light upon the condition and greatly assist in deciding the question. Repeated daily elevations of the temperature, extending over a period of three weeks or more, even though but one degree, (other diseases excluded) would indicate the presence of incipient tuberculosis, while an *entire* absence of fever would go to prove that the trouble was not tuberculosis.

Inflammation in any part of the body, even though not extensive, gives rise to an elevation of temperature for a period of greater or less duration, during each twenty-four hours, and the fever thermometer is therefore valuable in determining the extent and severity of the inflammatory process (as for instance tubercles in the lungs), as well as the amount of poisonous products generated by the inflammation. Every tubercle in the lungs is an inflammatory process, and, during the active course of the disease, gives

rise to a definite amount of fever, varying somewhat with the *degree of activity*, the *stage of the disease*, and whether or not the toxines (poisons) generated by the action of the bacilli of tuberculosis, are being neutralized, eliminated, or whether they are being absorbed in the general system.

It may be said on general principles, in speaking of pulmonary consumption in the *first and second stages*, that the more numerous the tubercular nodules, or, in other words, the more extensive the disease, the higher and more persistent will be the fever. The temperature is highest in cases of "quick" or "galloping" consumption, when it often ranges from 103 to 104 degrees each afternoon and evening, unless direct means are employed to control it.

It is *never* advisable to use remedies which have the effect of reducing the temperature of pulmonary consumption without removing the cause. Like the cough of consumption, a fluctuation of the temperature in that disease, is a true function. It serves as a valuable and reliable guide in indicating whether or not the disease is being properly managed. Such remedies as phenecatine, antipyrine, acetanelid, antifebrin, etc., will control the fever of pulmonary tuberculosis by a direct action upon the nerve

centers which control the body heat. But, while they reduce the fever in this manner, they do not in the slightest degree remove THE CAUSE of the fever, and, therefore, their effect is not at all permanent, and does not assist recovery in any way.

IT IS THE CAUSE OF THE FEVER, and not the fever itself, that does the harm, and nothing whatever is accomplished by SUPPRESSING the temperature in the manner described. While it can hardly be said that there exists a *definite* mathematical relationship between the actual extent of tubercular disease in the lungs and the height of the fever, the relationship is sufficiently accurate to designate more plainly than by any other means at our command, as to whether the morbid processes are becoming limited, or whether the disease is getting beyond control.

The lower the temperature average in pulmonary tuberculosis, the more promising the chances of recovery, assuming, of course, that no remedies are being administered to *suppress* the fever. A mild fever indicates that the tissues and fluids of the body have power to resist the extension of the disease—that they are successfully opposing the involvement of more lung tissue, and that healing of the lesions may be expected to take place if proper treatment

and management are administered. While, on the other hand, a persistently high fever indicates that the disease is quite extensive, and that the system is comparatively powerless to oppose further invasion. Nothing definite or of value can be learned of the temperature range, unless it is taken *systematically*.

As a rule, the temperature of consumptives is normal or below normal during the early morning hours. In exceptional cases the temperature may fall as low as 96, or even 95, degrees in the early part of the day. This, of course, is very unfavorable, and every effort should be made to keep it as near 98½ as possible. To accomplish this the patient should remain in bed until the temperature is 98½ degrees. Heat should be applied to the lower extremities by means of hot water bags; and hot milk should be frequently given. By following up such a course of treatment with regularity, the profound depression of the vital forces can be overcome to a considerable extent, with great benefit to the patient. When the temperature is exceptionally low in the morning, it is very apt to be exceptionally high in the latter part of the afternoon, and by overcoming the morning depression, the fever will be milder later in the day.

It will now be understood that a systematic tem-

perature record is extremely valuable. By its aid one can remedy many unfavorable conditions and avoid disastrous complications. The future course and actions of the patient can be intelligently shaped. The temperature will indicate what exercises are harmful, and they can be avoided. It will show whether it is advisable to adopt the "rest treatment" (see Chapter xxxiv), or to lead a comparatively active life. As before stated, it will indicate whether the diseased areas are healing, or whether they are spreading; and should the latter be the case, a more determined course may be adopted to gain control of the condition.

No patient can be pronounced cured of consumption until the temperature falls to and *remains* within normal limits. The temperature should be taken at eight, ten and twelve A. M., and two, four, six and eight P. M. (pulse to be taken at the same time. See Record Chart). A daily average of the temperature should be made each evening. *Those hours at which the temperature may be below 98 1-2 degrees should not be included when making the average.* A weekly average should also be taken at the end of each week. Watch your daily temperature range, record and compare it with your various

physical movements of the day. When you observe that any particular effort or exercise has been the means of elevating your temperature, you will be in position to evade it. Follow that course which yields to you the *most favorable* temperature range. When the fever is exceptionally high it is important that the invalid adopt the Rest Treatment until the temperature is brought under control. He can well afford to give the necessary time to carrying out the Rest Treatment, for it will be time well invested. It may be well to repeat the warning that the pulmonary invalid should not take any remedy to *suppress* the temperature, for then the record would be worse than valueless. It would be misleading and harmful, for it would not indicate the true condition. Make an effort, by studying your condition, to lower your temperature average each and every week by suitable *managment*. Every fraction of a degree lowered, will help to turn the balance of the scales, which decide between recovery or dissolution, in your favor.



CHAPTER XXXIV.

THE REST TREATMENT OF PULMONARY TUBERCULOSIS.

Do Not Persist in Following Active Exercises Should There Be Indications that Such a Course Is Not Favorable to Recovery.

In that case the "*Rest Treatment*" should be *at once* adopted. The "Rest Treatment" is simply a mode of management which has, by its satisfactory results, won the confidence and favor of many of the leading practitioners of medicine.

Some of its ardent advocates advise that the rest treatment be adopted in the management of *all* cases of consumption. But while there is little doubt that it would be beneficial in all cases, it could scarcely be said that it is necessary, and moreover in many homes there are not facilities for its successful operation. The "Rest Treatment" consists of the pulmonary invalid remaining in bed as closely as if afflicted with typhoid fever, or other serious acute disease,

for such length of time as the condition would seem to indicate. The bed is placed in a *large, cheerful, airy room, well ventilated and well lighted*. The temperature of the room is kept below 70 degrees if possible.

The object is to maintain *absolute body quiet*, which, however, to be most successful, must be supplemented by favorable general conditions, such as pure air, suitable food, cheerful surroundings, and good nursing. Simply remaining in bed without regard to other conditions will not yield results, with any degree of certainty.

In what class of cases is the rest treatment applicable, or rather, necessary? In those cases where the temperature is persistently high. When the temperature goes above 100½ degrees each day despite proper general management, the rest treatment is positively indicated; when the heart action is rapid (above 100) and excitable; where there is progressive waste of flesh, despite all efforts to prevent, and when, as a result of this condition, there is progressive physical weakness, marked shortness of breath, and symptoms of general constitutional failure, the "Rest Treatment" *must not be postponed*. For a pulmonary invalid, in whom these conditions are present, to persist in

active exercise, is nothing short of madness. Many invalids, however, believe, or are taught by their friends, that should they "give up" and remain in bed, they would loose strength much more rapidly. But notions of this order are pernicious nonsense, and it would be difficult for those who believe that such would be the result to explain why it should, or could be.

Such result would be in opposition to all known laws of physiology. There might be an *apparent* loss of strength, but in reality there will be an actual gain, if any gain is possible, and moreover the patient will be very much more comfortable. An invalid in the condition heretofore explained may remain up and about by force of will. He cannot feel able to be about, but he will not give up for fear of becoming bed-ridden. But such movements are due to an obstinate or to a fearful spirit rather than to any intelligent motives. The individual who will keep up on his nerve, and not his strength, will, though he may fail to appreciate it, constantly grow weaker.

What will be the most pronounced effects from a proper adoption of the rest treatment? First:—We will see a more or less complete cessation of chills or chilly sensations, which are usually associated with,

and are so productive of high fever. As a result of this and from the effect of body quiet, the fever will fall several degrees below its usual range, when the invalid was leading an active life. The tubercle bacilli are most active when the temperature is high and, therefore, this effect upon the fever is very favorable to recovery. The sub-normal temperature of the early part of the day will be greatly relieved. The heart action will be strengthened. A pulse which may have ranged from 120 to 125 will usually fall to 90 or 100.

A temperature which has been ranging from 102 to 104 degrees, will usually, in the course of a week or ten days, drop to a range of from 100½ to 101 degrees, and the respirations, which may have been from 30 to 40, will fall to normal (18). The cough will become much less irritable, the expectoration more easily accomplished, and night sweats greatly relieved. The appetite improves; digestion and assimilation are more perfectly performed, and, in a general way, we will in a comparatively short time—should there remain a sufficient vitality to build on—see a noticeable return of strength, which means disease resistance. Chest exercise, by aid of the rubber sacks, as previously explained (see Chap

ter XII) may be effectively continued while pursuing the "Rest Treatment." In such cases it is better to use oxygen gas instead of pure air, as oxygen will greatly assist in building up the blood, and in this way check the progressive tissue waste.

In the above description I have only recounted the effects which I have personally observed. Some of our best authorities upon the subject, assert as much. No one should be prejudiced from following a course which promises such pronounced results in favor of recovery—a course which cannot possibly do harm. One should not adopt the Rest Treatment upon any half-way basis and "sit up in an easy chair" for a good portion of the day, for results cannot be expected to follow such procedure. It is admissable to get out of bed each day, and have the bed thoroughly aired, and this should be done in the afternoon.

Getting up in the morning would be apt to give rise to a chill, with fever as a consequence. Apparently the tubercle bacilli watch, and take advantage of every opportunity, in their struggle for supremacy. The temperature of the room should not be below *75 degrees* when getting up for any purpose whatever, for the slightest chilling of the

body is very liable to give rise to one or more additional degrees of fever.

One cannot expect the best results from the Rest Treatment, if the ventilation of the room, and the various hygienic precautions are not carefully attended to. While he is following the Rest Treatment, every effort should be made to keep the invalid contented, cheerful and hopeful. When necessary to heat the room, the directions in Chapter xxx should be observed.

Doubtless there are many who will question as to where lies the dividing line which shall indicate which patients should lead an active life and which should adopt the "Rest Treatment." The question is a vital one, and a human life, may, in many cases, depend upon a skillful decision. It is impossible to lay down any but the most general rules, and it will fall to the judgment of the physician to decide the question. But with a complete record of the heart action, the temperature, and body weight, together with the various other indications generally present, the matter of decision is a comparatively simple one. As it is a simple matter with these records, so is it a difficult matter to render an accurate decision without them, and this should be another incentive to the patient

to make all records of his case, so far as is in his power, as complete and accurate as possible.

When there is any doubt as to the advisability of adopting the "Rest Treatment," the patient should be given the benefit of such doubt. The "Rest Treatment" cannot possibly do harm, while any hesitation in adopting it while awaiting more decisive symptoms, may do irreparable injury. It is better that the physician insist upon the adoption of the "Rest Treatment" even in the absence of decisive indications.



CHAPTER XXXV.

SHALL THE PULMONARY INVALID MAKE A CHANGE OF CLIMATE?

Do Not Make a Change of Climate Without First Giving the Matter Very Careful Consideration—If Possible, the Pulmonary Invalid Should Regain Health in His Native Climate.

It must be remembered that in these days, the pulmonary invalid is obliged to choose between two opposite climates—the northern and the southern.

The benefits which the pulmonary invalid may derive from a continued residence in the *highlands* of the New England and Middle states, particularly those of New York and Pennsylvania, appear to have been somewhat ignored in the enthusiasm for the climates of New Mexico, southern California, Colorado and the like. But of late there has been quite a marked reaction in favor of the colder climates.

In considering the advantages held forth by any distant climate, one must also consider to what extent he may duplicate those advantages by re-

maintaining in his native climate, surrounded by the pleasures and comforts of home, and the attendance of friends.

One must also endeavor to consider what would be the probable effect of sacrificing home comforts, and the placing of one's self in a strange locality with strange surroundings.

There is a saying as follows: "When doctors disagree, who shall decide?" and it would seem that these words are eminently applicable to the question of climate in its relation to the pulmonary consumptive. No one can deny that truly remarkable recoveries and improvements have occurred as a result of *suitable cases of pulmonary consumption remaining in suitable western or southern climates.*

Neither can we deny that many persons who have sought benefit from change of residence, to the south, west, or southwest, have not improved at all; and a certain percentage have been made worse by the *experiment.* In the light of our present knowledge, as regards climatic influence upon the pulmonary invalid, a change of climate is, in most instances, little better than an experiment, a lottery, in which, of course, all cannot win. Brilliant climatic recoveries are frequently reported, but often, as in other

matters, we are not so freely informed upon the unfavorable side of the question.

There are to-day hundreds of persons enjoying good health, who must certainly have perished but for the intervention of a favorable climate, while on the other hand many invalids have sacrificed their only chance of recovery in vain search of a suitable climate.

As we learn more and more of the true nature of pulmonary consumption; as we understand more and more thoroughly its complicated effects upon the system, we are constantly becoming the better prepared to adopt more successful *home treatment and management*. With a knowledge of what must be accomplished to neutralize the effects of pulmonary tuberculosis upon the system, and antagonize its further extension, we are in better position to entirely dispense with distant climates.

Another factor which frequently comes up for consideration, and should come up more frequently as regards climatic change, is as to whether or not the invalid is perfectly able from a financial standpoint, to make such a change.

Invalids not in position to pay their way without worry, should never leave their homes on long jour-

neys. Many invalids have started for distant "health resorts" only to find that their traveling expenses have so reduced their means, that upon reaching their destination, they are scarcely in position to meet ordinary living expenses, to say nothing of medical attendance, medicines, and other expenses attendant upon an invalid's condition.

As a result, in order to pay his way, the invalid soon finds the necessity of taking up some employment, whether or not he is physically able. Indeed many there are who cannot obtain employment of any nature, and suffer not only destitution, but the mental strain of the situation.

Therefore the question of finances must always be given careful consideration, in order that such painful situations may not arise. The invalid is infinitely better off at home, if his finances are limited.

When making a change of climate the pulmonary invalid should, as soon as he arrives at his destination place his case in charge of a reputable physician, one who understands the peculiarities of the climate, and who has had experience in the management and treatment of such invalids.

Particularly should this be observed when going to a high altitude.

Invalids who are ignorant of the atmospheric influences of a strange climate upon their general condition, may do themselves much injury by injudicious movements. Hence the necessity of at once placing their case in charge of a responsible physician. Some invalids imagine that it will not be necessary, in favorable climates, to employ a physician. Many believe that the climate in itself, without regard to anything else, will effect a recovery. However, everything considered it will be found no economy to endeavor to dispense with professional management.

As to whether a change of climate is necessary depends somewhat upon the nature of the invalid. Whether he is willing to carry out the details of systematic home management. Some individuals, naturally careless, and who cannot be depended upon to co-operate with their physicians, should be placed in natural surroundings, wherein they can do themselves the least harm.

With our present knowledge of pulmonary tuberculosis physicians may, by careful study of consumptive invalids determine as to whether a change of climate is a necessity to recovery. If a pulmonary invalid is as certain of recovery by remaining in his native

climate, it is far better that a change should not be made, even though he may be abundantly able from a financial standpoint.

There are many, and an increasing number of physicians, who advise a residence in the highlands of the states of New York and Pennsylvania, in preference to a residence in the south or southwest. Some physicians go so far as to say that *one winter* in these highlands will do more to facilitate recovery from pulmonary consumption than *two summers* in the same locality. Such opinions are of course contradicted by the advocates of the warmer climates; nevertheless, there is much proof as regards the efficacy of northern climates.

Then aside from the question of northern and southern climates, we have also to consider sea-level, moderate altitude and high altitude. Here again the physician is called upon to exercise his judgment, and to a certain extent be responsible upon a matter in which the elements of chance predominate. There are local advocates for nearly every kind and condition of climate. This renders the question still more confusing. One must not allow his judgment to be unbalanced by any brilliant results which may have come from a *favorable case* residing

in a peculiarly *favorable climate*,—a result which may be very difficult of repetition. It will therefore be seen that the question of climate is beset with many difficulties and is not to be gone into blindly. In the enthusiasm of climatic possibilities, let me repeat that one should not for a moment overlook the advantage to be derived from home life, home management and home treatment, carried out with systematic regularity and scientific accuracy. An invalid who is constantly homesick, despondent and depressed in a strange place, will not, as a rule, be benefitted away from home.

In general it may be said that when the pulmonary disease in an advanced stage—with considerable destruction of lung tissue—where there is a rapid waste of flesh with high fever and great weakness, or when there are indications of “quick” or “galloping” consumption, a change of climate is not to be recommended. Such cases will be much more comfortable, and will stand a better chance of recovery in their native climate. When there are cardiac or nervous complications, or a decided tendency to pulmonary hemorrhage, a high altitude should be *avoided or at least gained by very moderate degrees.*

The pulmonary invalid should never make a change

of climate as a last resort. Such a movement is an injustice to his family, an injustice to the climate to which he may go, and finally it is an injustice to himself.

In general it may be said, that the pulmonary invalid should make every possible effort to regain health in his native climate. If the invalid will give proper attention to himself, in fact follow out a scientific management as the author has here endeavored to describe, his chances of recovery in his native climate are infinitely better than if he were to go to a favorable climate, and *not attend* to his general management in a scientific way.

Another factor in favor of treatment in one's native climate, is that when the pulmonary invalid regains health in his native climate, such recovery is apparently more complete and more permanent. This in itself is very important, and should be a great inducement to such invalids to make every possible effort to regain health in their native climates. It is the unprejudiced opinion of the author, that a recovery from pulmonary tuberculosis effected in the highlands of New York and Pennsylvania, is far more complete than is possible in the western or southwestern states.

It might be well to understand just what a climatic cure amounts to. The invalid who goes west or south, and finding a locality which benefits him, as a rule remains there so long, as his improvement continues. His symptoms may entirely disappear, and his weight may increase to normal, and to all appearances he may entirely recover from the disease.

After a time he may visit his native climate. What is the effect? An almost immediate return of his former symptoms, and with these there sets in a loss of weight typical of active pulmonary tuberculosis. He is obliged to hurry himself back to his "climate refuge" if he would save his life.

Can the advocate of climatic treatment satisfactorily explain why, so soon after the invalid leaves a peculiar climate, there should be in so many cases, an early return, in all their former severity, of the symptoms which were present when his disease was in active progress?

It cannot be possible that the invalid was actually cured; cured in every sense of the word; that the disease had been entirely eliminated from the system, else there would not have been so immediate a return of the various symptoms as soon as he was beyond the influence of a particular climate.

It would seem that instead of eliminating the tubercular disease from the system, and in this way effecting a permanent healing of the pulmonary lesions, the climate had had the effect only of checking the course of the disease, and holding it in suspension, which is permanent so long as the invalid remained in that particular climate. In reality, the pulmonary invalid who has obtained a "climatic cure" is a "*climatic exile*." He is permanently exiled from his native climate.

Inasmuch as the climatic cure has not eliminated the disease from his system, it would seem that his children, should he have any, would inherit a very intense predisposition to the disease.

After considering everything, an impartial observer must admit, it is better by far that the pulmonary invalid make no change of climate, unless it is a positive necessity to save his life. He can well afford to take the additional risk (if there is any risk) in order that he may regain health in his native climate.

There is another factor which enters into the question as to whether a change of climate is necessary or advisable. Namely: what are the advantages or disadvantages of the invalids home as regards the

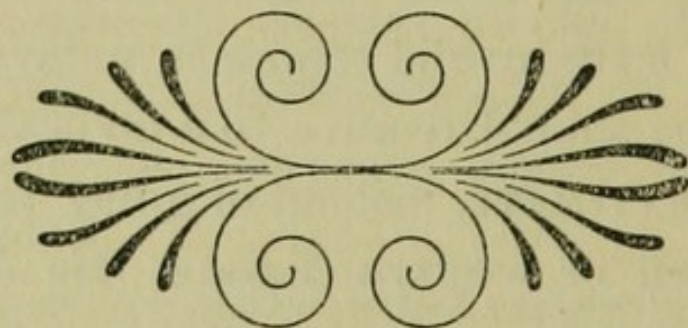
carrying out of a successful method of treatment or management? If the invalid resides among surroundings which on general principles are detrimental to his condition, a *change of residence* not necessarily a change of climate, is demanded. In the majority of instances, a change to some neighboring highland where fogs do not prevail, and where the air is comparatively free from dampness, will do as much as a change to a climate hundreds and perhaps thousands of miles distant.

In a previous chapter the author has mentioned that it is not advisable for the pulmonary invalid to continue a residence in the city, particularly if the city is large and located where fogs prevail, and where the air is damp and smoky. He has shown how necessary it is for the pulmonary invalid to take up a *permanent* residence in the country, not only for his own welfare, but for the welfare of his children, if he has any.

Therefore, if the invalid resides in unfavorable surroundings, he should remove to a favorable locality in HIS NATIVE CLIMATE, instead of going to some distant southern or western climate. He should take up a residence in his native climate in a locality free from excessive moisture, both as regards atmosphere and soil, which in a general way will be favorable to

the regaining of his health. Having located *permanently* in such surroundings he should employ a physician to direct him in carrying out a *scientific management*.

By taking such a course his chances of recovery will be far better than if he goes to some distant western or southern climate, and fall into the natural error of depending upon what the climate of itself would do for him, and ignoring the details of definite management. To repeat, his chances of permanent recovery will be far better if he remains in his native climate and systematically follows out the various detail of scientific management, than if he went to some milder climate and ignored, or only carelessly followed scientific management.



CHAPTER XXXVI.

NIGHT SWEATS OF PULMONARY TUBERCULOSIS.

Their Causes, Prevention and Treatment.

Very frequently, during the active course of pulmonary tuberculosis, night sweating will become so troublesome, as to demand special attention. These sweats can be most quickly relieved, or more properly speaking suppressed, by the use of drugs which have the immediate effect of checking the activity of the excretory, or as they are more commonly known, the "sweat glands" of the skin, and on account of the readiness with which such drugs will check the sweating, the pulmonary invalid will frequently request of his physician treatment of that nature. However, it is seldom, if ever, admissable to administer special remedies to relieve the night sweating of tuberculosis. To check the night sweating of consumption by such means will certainly do the invalid great harm.

It is no more admissable to check, or in more applicable words, *suppress* the night sweats of pulmonary tuberculosis by the use of drugs, than to check or suppress the cough and expectoration by such means. Like the cough of pulmonary tuberculosis, night sweating is a true function; an effort on the part of nature to relieve the general system of the poisonous products generated by the action of the tubercle bacilli.

Profuse night sweating is, of itself, an indication that the invalid is not following out his general management in a proper manner. It is an indication for the physician to correct some indiscretion on the part of his patient.

Therefore, instead of administering drugs to check the activity of the sweat glands, and in this way suppress night sweats, the physician should make special efforts to discover in what respect the patient has been indiscreet. This he can quite easily do, by reference to the record chart. The physician should find the actual cause of the excessive sweating, for there is certainly a distinct cause, which, when removed will relieve the night sweating in a natural way.

To discuss the question more intelligently, it will

be necessary to refer briefly to the physiology of the skin, and its relation to the well being of the pulmonary invalid. In a previous chapter, the author has called attention to one of the important functions of the blood, the carrying of waste products and, in the pulmonary invalid, the poisonous substances, generated by the activity of the tubercle bacilli, to the proper organs, for elimination from the body. In the skin are thousands of minute glands, whose function it is, to assist in eliminating from the system deleterious substances, such as waste matter, toxins and the like. This is done in the form of perspiration.

In the healthy individual the perspiration is usually so little, as to have been termed *insensible* perspiration. By virtue of their functions, these glands are usually termed excretory glands, or more commonly "sweat glands." As the kidneys filter from the blood various waste and poisonous products, so do these excretory glands filter from the blood, waste matter, toxins, etc., according to the condition of the system.

When, as sometimes during the course of pulmonary tuberculosis, the blood contains an excessive quantity of toxins, these excretory glands are stim-

ulated to excessive activity, which results in more or less profuse sweating, according to the intensity of toxine poisoning.

The author has stated several times previously that the higher the fever of pulmonary consumption, the more active the tubercle bacilli. They multiply with greater rapidity, while the tubercles disseminate with greater rapidity, for not only does the high temperature favor the activity of the bacilli, but it at the same time reduces the vitality of the lung tissue—reduces its resisting powers against tubercle invasion. As the high fever admits of greater bacilli activity, the natural result is that while the temperature is high, an excessive amount of toxins are generated, absorbed by the blood, and carried to all parts of the body.

Therefore, following a high range of fever, the blood contains an excessive amount of toxins and waste products, which, as they circulate through the capillaries in and about the excretory glands, have the effect of stimulating the glands to excessive activity, with consequent profuse sweating.

While the fever is high, the functions of the sweat glands are held in abeyance, but as the fever diminishes, they resume their functions, and stimulated by

the excessive amount of disease products the sweating becomes profuse.

The elevated temperature accompanying pulmonary tuberculosis, usually falls to normal during the early part of the night, which accounts for excessive sweating taking place at night.

The sweats which occur in the later stages of consumption, sometimes known as "cold sweats," must not be confused with night sweats, as the former, which are due to *chronic* poisoning of the system, are liable to occur at any period of the day, when the patient may fall asleep.

It will be readily seen that to check night sweats of pulmonary consumption by the use of medicines which have the effect of suppressing the action of the sweat glands, would do the invalid great harm.

Such treatment, while it might make the patient more comfortable for the time being, would have the effect of driving back into the system, toxins, waste matter, etc., which would in themselves exert an exceedingly destructive action upon the blood, the tissues, the various organs, and in a general way prevent progress towards recovery. By suppressing the action of the sweat glands one would be defeating Nature's efforts to relieve the system.

Throughout the course of pulmonary consumption, the invalid should give the skin special care. Every effort should be made to promote and strengthen the functions of the skin.

Thorough care of the skin will do much to facilitate recovery, for by keeping the excretory glands in condition to do their normal part in the elimination of the various disease products, the general system will be kept in a condition more favorable to recovery.

In those homes where proper conveniences are at hand, the invalid should take a hot bath each evening, and while in the bath an attendant should go briskly over the body with a bath brush.

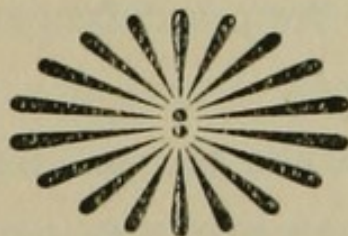
Following the bath, the attendant should rub the skin with a coarse towel until it is in quite a glow. Following this, the attendant should go quickly over the body and limbs with pure alcohol, rubbing the skin dry as the alcohol is applied. Following the "alcohol rub," the patient should immediately retire.

In those homes where there are not conveniences for the hot bath, the alcohol rub should be given the more thoroughly.

Finally, when night sweats appear, never admin-

ister remedies to check them, but on the contrary, allow them to continue until the cause can be discovered and removed. The cause will usually be found due to high fever. The fever may be due to chills, excessive physical exercise, or to an acute form of the disease—"quick" or "galloping" consumption. If due to a rapid form of the disease, no relief will be obtained until the "Rest Treatment" is properly adopted. It is a notable fact that while the "Rest Treatment" is being properly carried out, night sweating never occurs.

In some cases neglect of taking proper care of the skin will cause night sweats, and therefore it is well in all cases to see that the skin receives suitable attention.



CHAPTER XXXVII.

PULMONARY HEMORRHAGES.

Their Causes, Prevention and Treatment.

All hemorrhages from the lungs are due primarily to one of two definite local conditions:—FIRST—The presence of a general weakness of the walls of the pulmonary blood vessels, which allows of their rupture under comparatively slight strain, with consequent hemorrhage. SECOND—Ulceration of the walls of a blood vessel, from extension of tubercle ulceration. Naturally the former is the more frequent cause in the early stages of the disease, while the latter is the more frequent cause in the advanced stages.

Pulmonary hemorrhages occurring in the early stages of tuberculosis are not nearly so serious as those occurring in the advanced stages, as a result of tubercular ulceration of the walls of blood vessels. Those occurring in the early stages as a result of gen-

eral weakness of the walls of the pulmonary blood vessels, usually come from rupture of the smaller blood vessels, while ulceration in the advanced stages may involve large vessels and induce serious, if not fatal hemorrhage.

Pulmonary hemorrhages occurring in the early stages as a result of general weakness of the walls of the blood vessels, have never been known to terminate fatally. It is the hemorrhages occurring in the advanced stages, as a result of ulceration of the walls of large vessels which sometimes terminate fatally. In the advanced stages of consumption the blood has become so depraved in quality and diminished in quantity, that the sudden loss of a considerable amount of blood from hemorrhage is a serious matter.

Some cases of pulmonary tuberculosis extend over a period of years without the occurrence of hemorrhage. This is a difficult matter to explain, other than the walls of the blood vessels must have been very strong, so strong as to not to rupture from common causes, and so strong as to resist even the tubercle ulcerative processes.

Pulmonary hemorrhages in the early stages of tuberculosis do far more good than harm. For the

reason that in many cases they have been the means of announcing the presence of pulmonary consumption a long time before it would otherwise have been discovered, thus permitting of treatment in the very early stages, when had it not been for the occurrence of the hemorrhage the disease might have become quite advanced before its presence was detected.

From their diagnostic significance, pulmonary hemorrhages have been the means of saving life. In many cases hemorrhage is the first indication of pulmonary disease. Though lung hemorrhages, are in themselves of a startling nature, they are not without good.

The question will frequently arise:—“Does the occurrence of a pulmonary hemorrhage, in the absence of other manifestations of pulmonary consumption, indicate positively the presence of pulmonary tuberculosis?” In regard to this question there seems a diversity of professional opinion. From a strictly scientific standpoint, the occurrence of a pulmonary hemorrhage, *by itself* does not warrant a positive diagnosis of pulmonary tuberculosis. While from a strictly practical standpoint, the occurrence of a pulmonary hemorrhage, is of sufficient diagnostic importance, to warrant treating the case

as one of pulmonary tuberculosis. It warrants placing the patient under constitutional treatment and general management usually adopted in cases in whom the diagnosis of tuberculosis has been confirmed by microscopical tests, as well as by other tests, symptoms and conditions.

Pulmonary hemorrhage in some cases may occur some little time in advance of the presence and activity of tubercle bacilli in the lungs, though the bacilli are quite sure to appear later. Therefore, on the whole, after the occurrence of a pulmonary hemorrhage, the patient should not lose a day in placing himself under thorough constitutional treatment and general management. He should at once give up his regular employment or occupation and give his whole time and mind to the regaining of health. He should not adopt half way measures under the self deception that the occurrence of the hemorrhage was from accidental causes.

As a rule the first hemorrhage in a case of incipient tuberculosis follows severe physical exertion, *particularly lifting*. This should be a warning to the patient to never again lift any heavy object or over exert himself physically, either during the course of his disease or even after recovery. It will take many

years for the pulmonary blood vessels to regain normal strength and resistence, and the recovered pulmonary invalid must, during the remainder of his life, exercise great caution as regards physical exertions. Hemorrhages have occurred in cases as a result of severe physical exertion, many years following recovery from pulmonary tuberculosis. Such hemorrhages, however, would not in themselves, denote a return of tubercular disease.

In those cases of consumption in whom pulmonary hemorrhages show a tendency to recur, it is well for the physician to instruct the patient what to do for himself in event of a hemorrhage during his (the physician's) absence. In such cases, unless the patient has some understanding of what to do, he might lose a serious amount of blood which could, by immediate treatment have been saved.

What then shall the invalid do in the occurrence of a pulmonary hemorrhage, when it is impossible to obtain immediate medical attendance?

First:—Don't get frightened.

Second:—Don't allow yourself to cough. If there is a tendency to cough, by all means keep it under control of the will.

Third:—Don't take alcoholic stimulants or any other heart stimulant.

Fourth:—Lie down immediately, with the head quite elevated, and maintain complete physical rest. If there is a tickling in the throat, as is frequently the case following hemorrhage, make a strong solution of salt and water, and take a teaspoonful frequently. The salt will check the tendency to cough, while its astringent action will help control the hemorrhage.

Following a pulmonary hemorrhage it is advisable that a medicine be taken which will have the *immediate* effect of quieting cough. If the patient has at hand no "cough remedy" it is advisable for him to take a suitable dose of paregoric, (30 drops for an adult), and repeat as often as is necessary to obtain and maintain the desired result. Opium is a reliable remedy in the treatment of pulmonary hemorrhage, and therefore the opiate contained in paregoric renders this drug very serviceable and applicable to the condition.

In speaking of the necessity of not coughing after a hemorrhage the author mentioned the holding of the cough back from *force or will*. It is remarkable how perfectly, with proper practice, the *irritable or un-*

unnecessary cough of pulmonary tuberculosis may be brought under control of the will.

In certain Institutions, for the special treatment of tuberculosis, coughing at the dining table is strictly against the rules. By determined practice patients soon find no difficulty in holding unnecessary cough in check under control of the will.

Very frequently hemorrhage occurs both in the incipient and advanced stages of pulmonary consumption as a result of severe, irritable coughing spells. Therefore in those cases where there is a tendency to hemorrhage, the invalid must avoid unnecessary cough.

In those cases where there is a pronounced tendency to pulmonary hemorrhage, in addition to instructing the patient in a general way, what to do for himself, the physician should keep the invalid constantly supplied with reliable remedies, with full directions concerning their use.

The following remedies should be in the home of the pulmonary invalid who is predisposed to hemorrhages: One dozen four-grain powders of Tannic acid, with these directions: Take one powder every hour until four powders have been taken, following which take one powder every

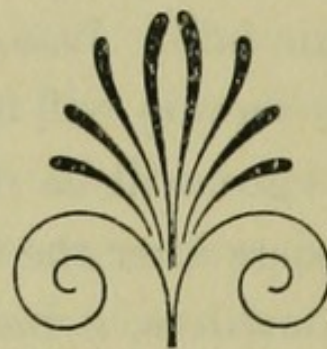
three or four hours, if necessary. In the treatment of many cases of more or less severe pulmonary hemorrhage, the author has found Tannic acid the most effective remedy to check pulmonary hemorrhages, not only as regards immediate results, but as regards permanent effects.

In some cases in which there is danger of hemorrhage, despite the most careful management, and in whom a hemorrhage would be liable to induce serious after effects, the author has administered one four grain powder of Tannic acid each day as a preventive of hemorrhage, with most gratifying results.

In addition to keeping constantly at hand a supply of Tannic acid powders, it is also advisable to keep an ounce of Squibbs Fluid Extract of Ergot, for use in case the Tannin fails. It is only in very exceptional cases that the Tannin will fail, but it is in such instances that the ergot will be of great service. If the hemorrhage persists after the taking of five, four-grain Tannic acid powders, a half-teaspoonful dose of the ergot should be administered, and repeated every half hour (if necessary) until three doses are taken.

This is very thorough treatment, and will have the result of effecting a coagulation of the blood at the

point of rupture of the blood vessel—Nature's method of checking hemorrhage. Here it is well to explain why heart stimulants should not be administered after a hemorrhage. They would increase the blood pressure in the lungs, and perhaps break down the clot, thus allowing a fresh hemorrhage. After bringing the hemorrhage under control, the physician must see that all irritant cough is entirely checked for several days,



Name

Date, From

To

	PULSE.							Daily Average	TEMPERATURE.							Daily Average	WEIGHT.			Chest Expansion	Chest Capacity	Night Sweats	Chills
	8 A. M.	10 A. M.	12 M.	2 P. M.	4 P. M.	6 P. M.	8 P. M.		8 A. M.	10 A. M.	12 M.	2 P. M.	4 P. M.	6 P. M.	8 P. M.		A. M.	P. M.	Daily Average				
Monday																							
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CHAPTER XXXVIII.

SOME FURTHER NOTES ON HOUSE SANITATION AS REGARDS TUBERCULAR CONTAGION.

When one member of a family becomes affected with pulmonary tuberculosis, what means other than those providing for the absolute destruction of all expectoration can be employed to prevent the spreading of the disease to other members of the family. Are further precautions necessary? Yes and no. All depends upon the length of time the invalid has been sick previous to the diagnosis of his case, and the employment of precise disinfecting methods as mentioned in Chapters One to Eleven. Also as to whether or not there are several young members of the family who would be liable to contract the disease had there been scattered considerable infectious matter about the premises previous to the diagnosis and the employment of sanitary measures.

In order to approach the question more precisely and more intelligently, it will be necessary to draw a practical example. For instance a family of children is nearing maturity, when one of them, perhaps the oldest shows indications of failing health. He becomes pale. Loses in flesh and strength. Has a hacking cough with some expectoration. Apparently has a throat or bronchial affection.

This condition may manifest itself insidiously, or perhaps may come on rapidly, following a severe cold, or some acute disease, as pneumonia, or typhoid fever.

This state of affairs is very liable to continue several months before a definite diagnosis is made. Indeed, in many instances, a physician may not be consulted for several months, the invalid being treated with home made cough syrup, "patent cough syrups," tonics and the like.

During the weeks and months that this condition continues, the delicate one, with no thought of endangering the lives of others, has taken no care to destroy expectorated matter, and as a result when a diagnosis of tuberculosis is finally made, has infected the whole household with tubercular contagion. This, with variations in individual cases, depending

upon the individual surroundings and conditions, will admit of very general application in all cases of incipient tuberculosis. The majority of cases of incipient tuberculosis run a course of several months in the incipient stages, before a definite diagnosis is made, and during this time must have disseminated a dangerous amount of contagion about the premises.

Therefore, when at last a definite diagnosis is made, what means are to be taken in order to remove all infectious matter from the premises. As to whether it is positively necessary to take special measures to remove the infection, must be determined by the attending physician. Viewed from every standpoint, there is no doubt that it is far safer to employ special means, as early as possible to place the premises in a sanitary condition.

Carpets, tapestries, plush chairs, plush couches, and bed clothing will be the chief points of danger. In many of the larger cities there are disinfecting stations, where household goods may be removed and safely disinfected. However such facilities are not within reach of the majority of families, and hence they must assume the responsibility themselves of disinfecting the furnishings.

The custom of taking up all the carpets in the

house twice annually, or "house cleaning" as is the general custom, is a procedure which sets loose in a virulent form all accumulated tubercular contagion, should there be a case of tuberculosis in the family, who had not exercised proper care in disposing of infectious matter, or as in the instance quoted, had infected the premises before he is aware that he had contracted tuberculosis.

When there are reasons to suspect the presence of tubercular infection in the carpets and furnishings, the younger members of the family should never be allowed to assist in the "house cleaning," or to be about the house while the work is in progress.

Where there are facilities, all the furnishings should be sent to a disinfecting station, should there be suspicions of tubercular contagion in them, and should not be dusted till *after* disinfection. Where there is no such station, the family must invent a disinfecting station of their own. Those objects which cannot be boiled should be disinfected with chlorine gas.

Disinfection of house furnishings with chlorine gas is on the whole a simple procedure. To be effective the chlorine gas must be applied as strong as possible, for half an hour or an hour, and the process repeated on several successive days.

For disinfecting with chlorine gas, a small room which can be tightly closed, should be selected. Chlorine gas is most easily generated by the use of ordinary chloride of lime and strong muriatic acid (commercial.) By pouring the acid upon the chloride of lime in an open glass or earthen dish, the gas is at once generated. None but glass or earthen dishes should be used as the acid is corrosive. To obtain the most powerful action of the chlorine gas, the articles to be disinfected should first be sprayed until quite damp with a solution of salt water. A common atomizer may be used for spraying purposes.

Having arranged in a suitable room, the materials to be disinfected, place in an earthen or glass dish, from four to six ounces of chloride of lime (it is not necessary to be exact) and upon this pour about one ounce of the muriatic acid. The acid should be poured out quickly, and the operator must at once retire from the room, as the gas generates very rapidly, and if inhaled is very irritating to the respiratory passages.

Chlorine gas, inhaled to any extent is poisonous. By this process the operator need not inhale the gas at all. The room should not be opened for at least half an hour, at which time the gas will have been

entirely generated, and the room may be aired.

Chlorine gas is very penetrating. That which escapes from the disinfecting room and permeates through the house is not dangerous.

The carpets should be removed from the floor and transferred directly to the disinfecting room. They should be thrown across lines or suspended from hooks on the walls, in a manner to expose as much of the surface as possible. After having disinfected the carpets, tapestries, plush goods and the like, with the chlorine, nature's germicides, fresh air and sunshine, must be depended upon to do the rest.

The carpets must be hung out of doors and exposed to the air and sunshine for several days, before being dusted. The same is true of plush goods, tapestries, curtains and the like. While there is a case of tuberculosis in the house, the latter furnishings should be placed out of doors two or three days of each week. Also if thought advisable by the attending physician, can be frequently disinfected with chlorine.

The invalid should have an easy chair and couch of his own, which should not be used in common by other members of the family.

To return to the subject proper. What shall be done in the ordinary home immediately following the

diagnosis of a case of tuberculosis, in order to prevent other members of the family from contracting the disease, as a result of contagion disseminated by the invalid *previous* to the diagnosis of his condition.

First:—If possible send away from the premises, the invalid and the younger members of the family (not to the same place.) Do not allow them to return until the house has been placed in a sanitary condition. Never, under any circumstances, under these conditions, allow the younger members of the family to assist in the work of house cleaning and disinfection. Employ strong rugged persons, who are not predisposed to tuberculosis.

Second:—Remove all tapestries, curtains and other furnishings, and have them disinfected with chlorine, and hung out of doors *before* removing the carpets. Next remove the carpets to the disinfecting room, and after disinfection hang them out of doors and have them properly cared for.

Third:—The carpets and other furnishings removed and properly disinfected, attention should next be directed to the walls and ceilings. The paper should be removed, and a mason should put them in condition to be attractively whitewashed or kalsomined.

So long as a case of consumption remains in the house, it is advisable that the walls be not papered.

Fourth:—Next the wood work should be washed with boiling water, following which it should be painted or varnished.

Fifth:—The porches and walks about the house should be disinfected with boiling water, and chloride of lime. If there has been much promiscuous expectoration about the walks and porches, it is very important that their disinfection be thoroughly attended to.

Sixth:—While disinfecting the house, the cellar must not be forgotten. Care must be exercised to secure good drainage, that the cellar may be kept perfectly dry. Damp cellars are productive of an immense amount of harm, particularly when there is a case of pulmonary consumption in the house, or when members of the household are predisposed to pulmonary disease. In many instances to secure good cellar drainage, it may be necessary to go to considerable expense and trouble, but it will be time and money well invested. The author has in mind several instances where damp cellars were the predisposing cause of pulmonary disease, and further to a certain extent, retarded recovery.

Seventh:—When the house is being put in a sanitary condition the furnishings of the invalid's room should be arranged according to direction in Chapter Eleven. Also arrangements for the proper heating of the room should be attended to according to directions in Chapter Thirty.

Eighth:—If the invalid is a farmer and has cared for the dairy, it should at once be determined if any of the herd have become infected. This is important. Prof. Osgood cites an instance where there had been several cases of consumption at a certain farm house, where he found a large proportion of the dairy herd badly diseased with tuberculosis.

Are any or all of these precautions necessary; is the question which will arise in the minds of many readers.

The question as to the necessity of applying one or all of the precautions must rest with the judgment of the attending physician.

It is the belief of the author that if these precautions were generally observed, instances of several members of families successively contracting tuberculosis within a very few years, would become more and more rare.

House infection is certainly the cause of much

tubercular disease, which is now laid at the door of heredity.

Whether it is necessary to disinfect the whole house or only those rooms which have been most occupied by the invalid is a question for individual consideration.

In another chapter the author has advised monthly painting of the woodwork of the invalid's room. To some invalids this procedure would be objectionable. In such instances, it is next best to go over the woodwork with benzine or turpentine. The painting or varnishing is advised for these reasons:

(1) Paints contain turpentine, which in itself is a germicide. (2) They fill in and render impervious all imperfections of the woodwork, which might afford a lodging place for the bacilli. (3) The paint or varnish would encapsule "*en masse*" any and all germ life in the woodwork.

The necessity of whitewashing the walls frequently will be apparent to all. Whitewash is itself a powerful germicide, and like the paint or varnish on the woodwork, would fill in all imperfections of the wall.

With the ceiling, walls and woodwork of the invalid's room, and other rooms frequented by him, kept in a sanitary conditary condition much has been accomplished to prevent "house infection."

Further than what has been said, it is advisable that the bed-clothing of the invalid's bed be frequently boiled or disinfected with chlorine gas or both, and also, in addition to daily ventilation in the room, that they be carried out of doors and hung in the sunshine several times weekly and even daily, during fair weather.

It is advisable that the clothing of the invalid, that which does not permit of boiling, be exposed to the chlorine gas disinfection twice weekly, and be hung in the open air frequently.

Occasionally, despite precautions, minute particles of expectoration may reach the clothing. Hence, the advisability of occasional disinfection.

It must always be remembered that thorough boiling of any and all articles suspected of containing tubercular infection, is, in the absence of special facilities, preferable to any other means, and that chlorine disinfection is to be utilized only when the article to be disinfected, because of its size cannot be boiled, or when boiling would seriously impair the value or usefulness of the article.

In conclusion, the author earnestly hopes that any remarks contained in this or other chapters, will not be considered impertinent. His object throughout

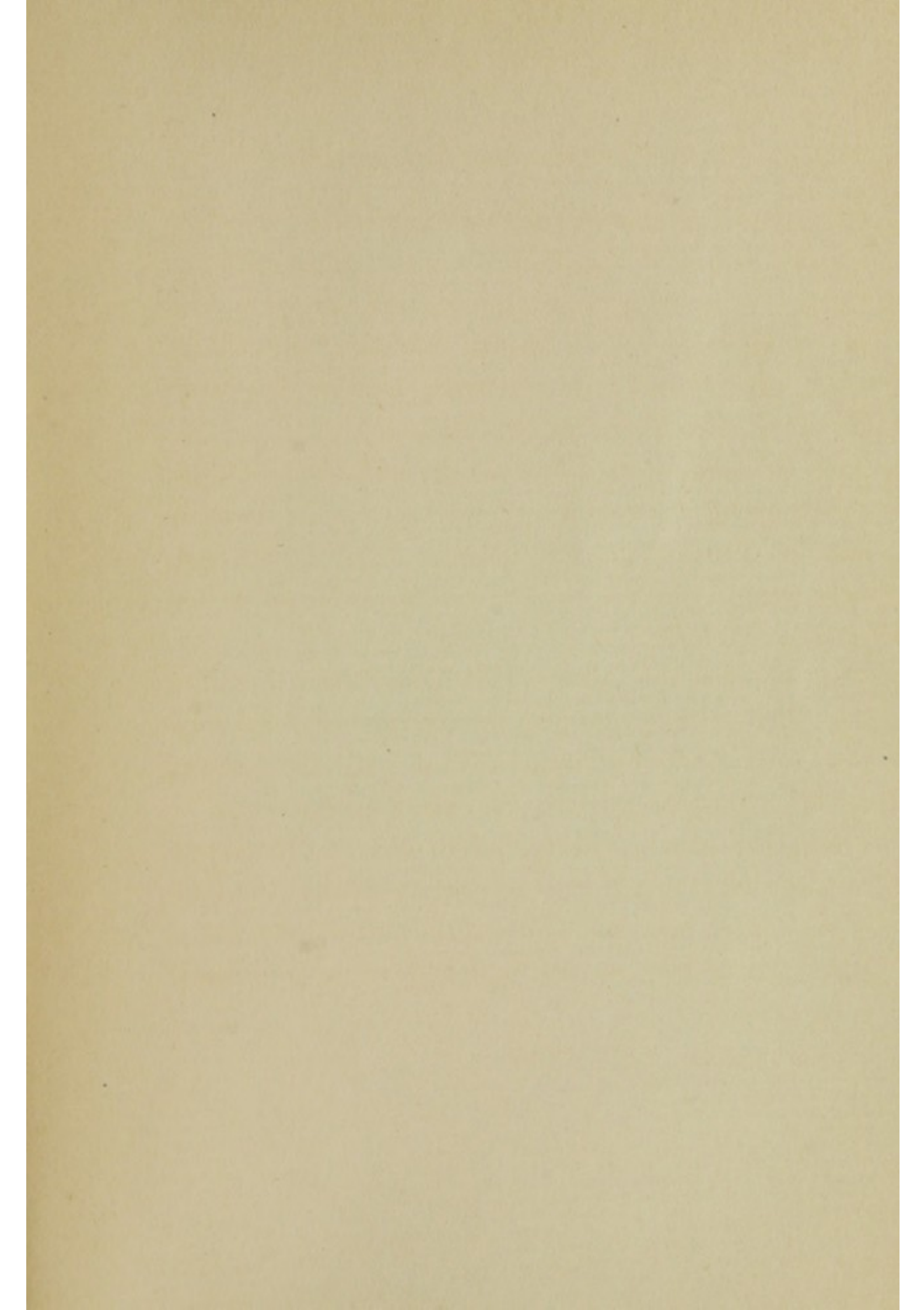
has been to advance practical suggestions, which, if utilized, will have the effect of increasing the invalid's chances of recovery, minimizing tubercular contagion, of strengthening the natural resisting powers of those predisposed to tuberculosis and in this way, have the effect of saving life and health.

On account of the diversified conditions of those affected with tuberculosis, the advice herein contained will, of necessity, require more or less modification, depending upon the social and financial condition of the invalid.

However if the general principles herein outlined have the effect of reducing the prevalence of tuberculosis and rendering those affected with the disease, more curable, the author will feel well repaid.

It might also be admissable to add that if the pulmonary invalid will do his part faithfully and conscientiously, and the public at large do its part as well, the desired results will follow as a natural consequence.

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