

**The renewal of life : arguments for subcutaneous injections of oil in the cure and prevention of senility and disease; for the making of the acme of abundant health, stamina, vigor, vitality and constitution; for the cure of consumption and other diseases, particularly those of a chronic nature / by Thos. Bassett Keyes.**

### **Contributors**

Keyes, Thomas Bassett.  
Augustus Long Health Sciences Library

### **Publication/Creation**

Chicago, Ill. : The Tubercle press bureau, 1909-10.

### **Persistent URL**

<https://wellcomecollection.org/works/ppw8d8kc>

### **License and attribution**

This material has been provided by This material has been provided by the Augustus C. Long Health Sciences Library at Columbia University and Columbia University Libraries/Information Services, through the Medical Heritage Library. The original may be consulted at the the Augustus C. Long Health Sciences Library at Columbia University and Columbia University. where the originals may be consulted.

This work has been identified as being free of known restrictions under copyright law, including all related and neighbouring rights and is being made available under the Creative Commons, Public Domain Mark.

You can copy, modify, distribute and perform the work, even for commercial purposes, without asking permission.



Wellcome Collection  
183 Euston Road  
London NW1 2BE UK  
T +44 (0)20 7611 8722  
[E\\_library@wellcomecollection.org](mailto:E_library@wellcomecollection.org)  
<https://wellcomecollection.org>

COLUMBIA LIBRARIES OFFSITE  
HEALTH SCIENCES STANDARD



HX64131009

RC311 .K52

The renewal of life;

**RECAP**

# THE RENEWAL OF LIFE

---

THOS. BASSETT KEYES, M.D.



RC311

K52

Columbia University  
in the City of New York

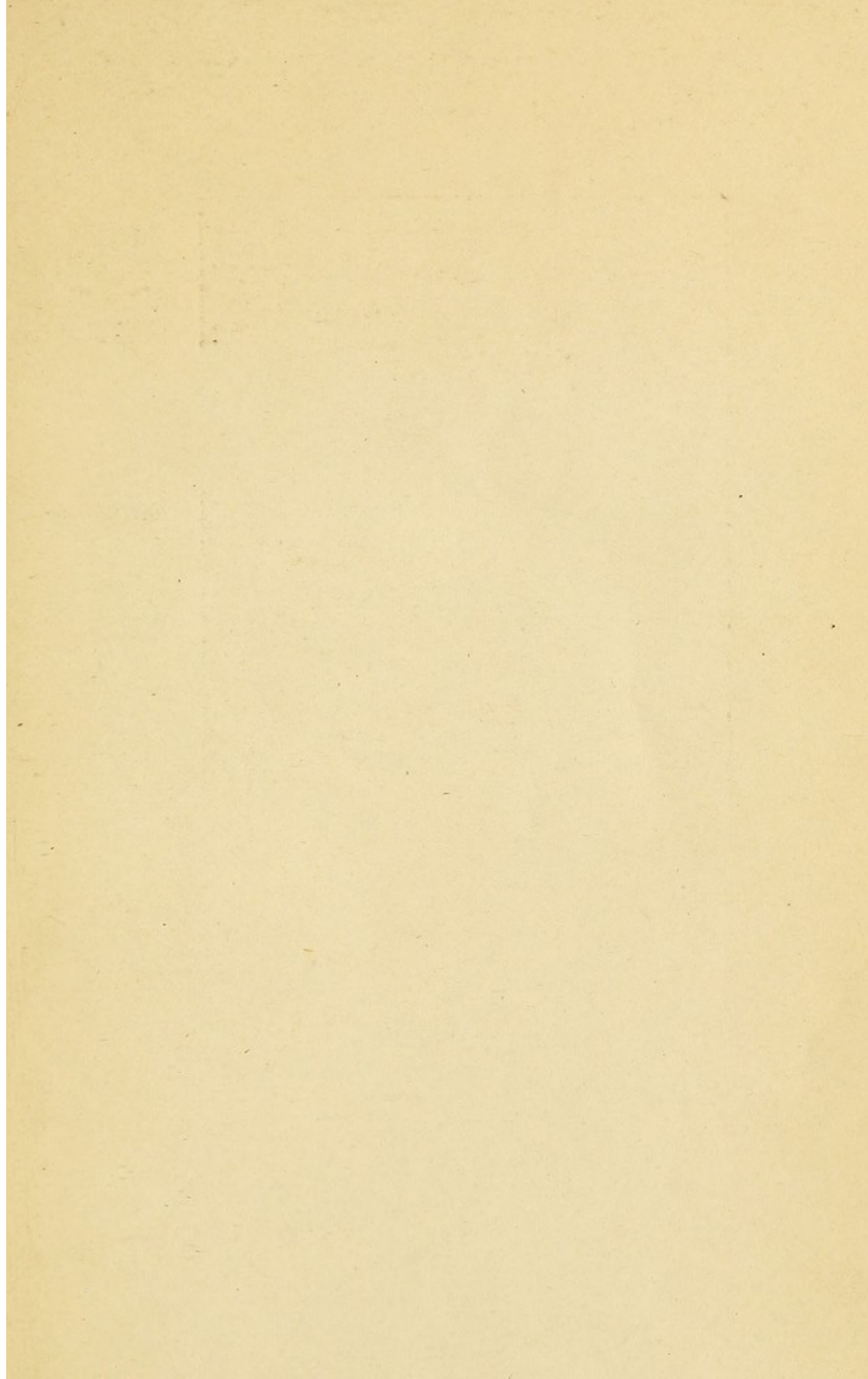
LIBRARY

Medical Library

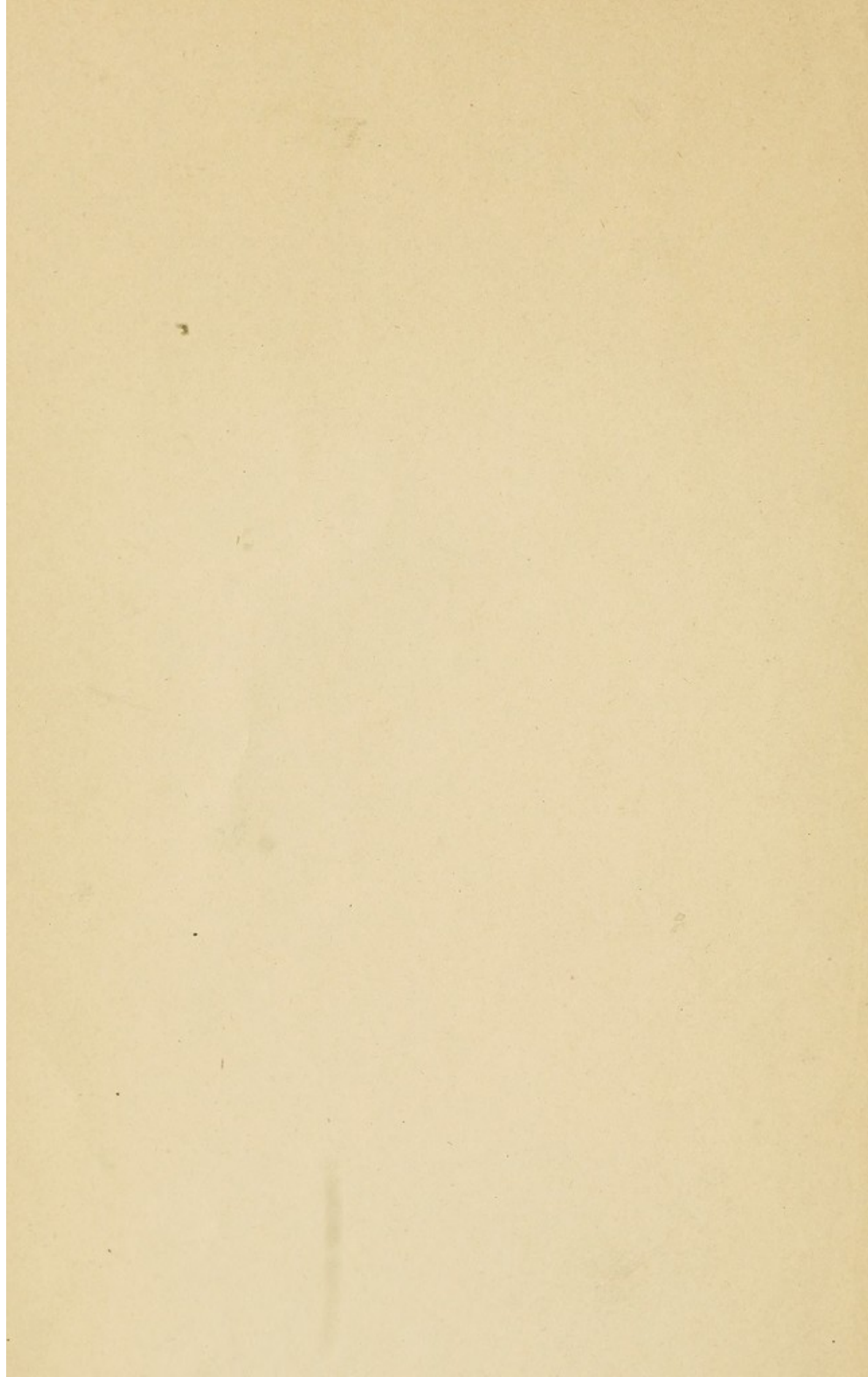



GIVEN BY

Prof. J. McK. Cattell



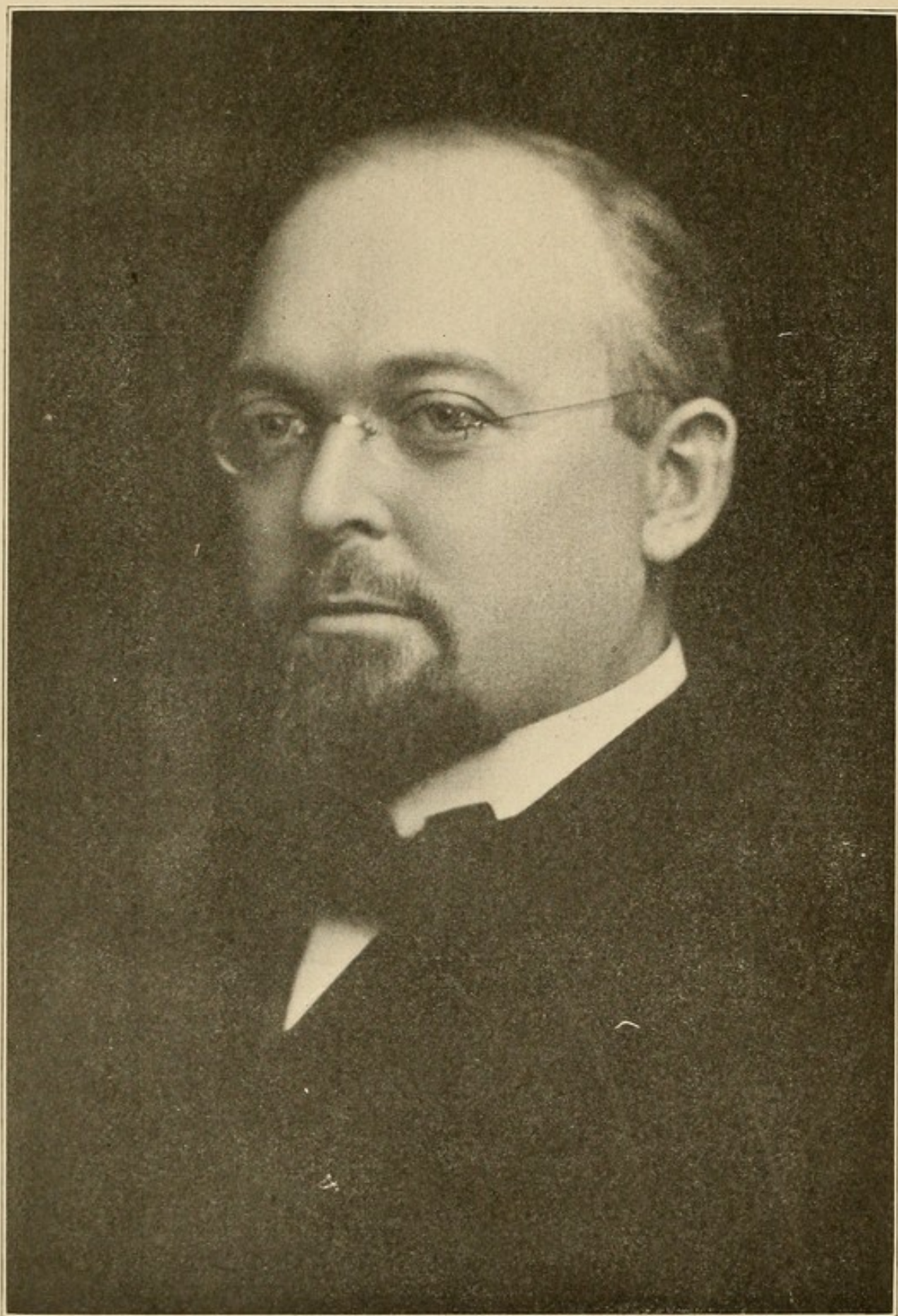






Digitized by the Internet Archive  
in 2010 with funding from  
Open Knowledge Commons





*Thos. Bassett Hayes*



# THE RENEWAL OF LIFE

Arguments for Subcutaneous Injections of Oil in the Cure and Prevention of Senility and Disease; for the Making of the Acme of Abundant Health, Stamina, Vigor, Vitality and Constitution; for the Cure of Consumption and Other Diseases, Particularly those of a Chronic Nature

BY  
THOS. BASSETT KEYES, M. D.

OF CHICAGO

Chairman of the First Organization Committee of the American Congress of Tuberculosis, and one of the Vice-Presidents of The International Congress of Tuberculosis, St. Louis Exposition, 1904; First Vice-President of International Congress of Tuberculosis, N. Y., 1906, and Chairman of its Section on the Relation of Insanity to Tuberculosis; Member of The National Association for the Study and Prevention of Tuberculosis. Formerly Editor of the "Tubercle," a Journal on Tuberculosis, etc.

---

THE TUBERCLE PRESS BUREAU  
CHICAGO, ILL., 1909-10



LIBRARY  
UNIVERSITY  
COLUMBIA

Med Lib

GIFT

Prof. J. Mc K. Cattell

OCT 5 1911

COPYRIGHT, 1909,

BY

THOS. BASSETT KEYES, M. D.

RC 311

K52



## PREFACE.

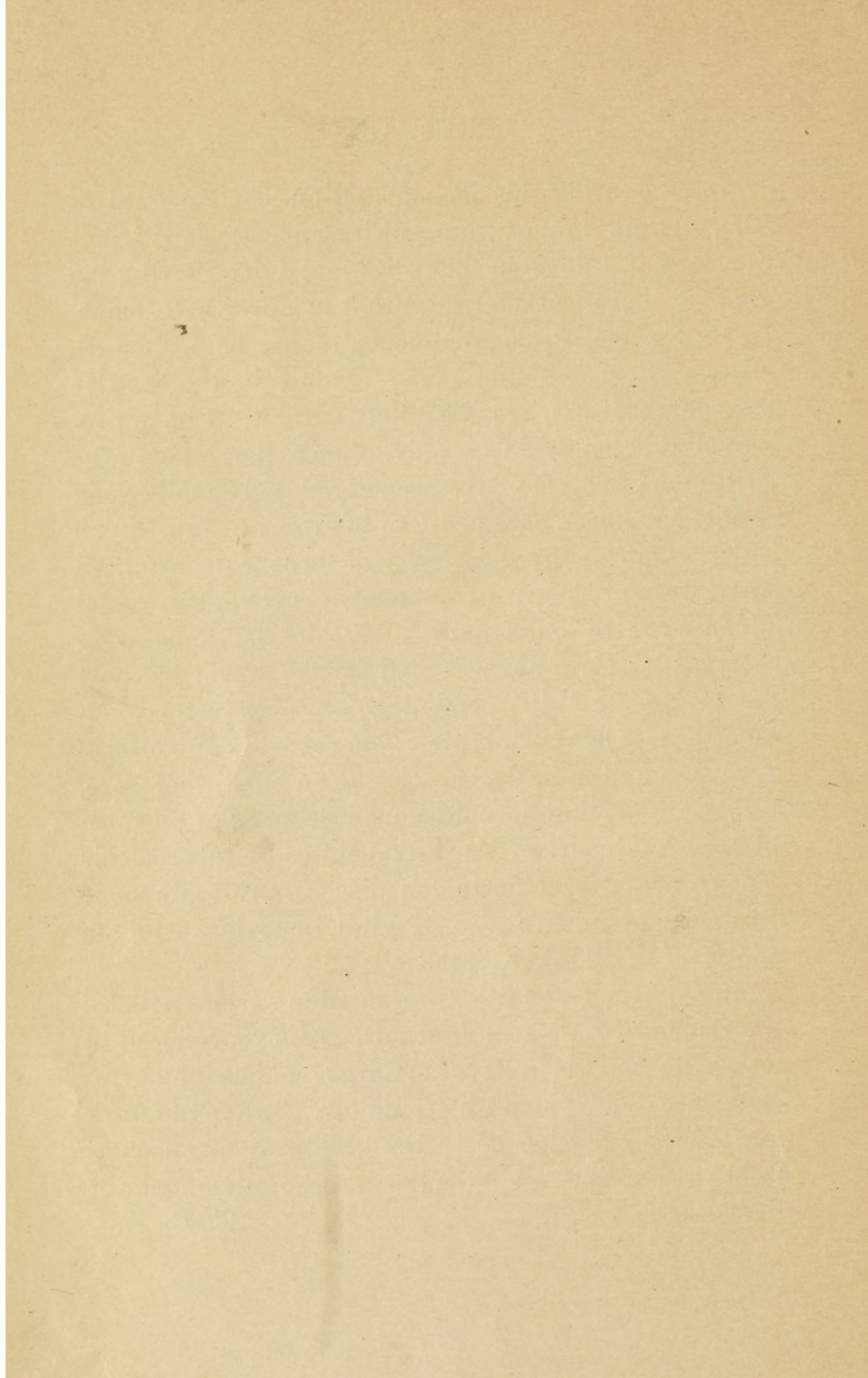
In presenting this monograph on The Renewal of Life, and the Cure of Disease with Subcutaneous Injections of Oil, I do so in the belief that I am offering the greatest therapeutic advance that has ever been made.

By the aid of this treatment life may be prolonged, disease prevented and many chronic and otherwise incurable diseases are absolutely curable. I have presented tubercular cases only. Since the report was written many others have been cured and equally good results have been obtained. In the record of cases you will see that the great majority of those who have been cured were at the time treatment was commenced well advanced with pulmonary tuberculosis. Some were such cases as are not accepted for treatment by most Sanitariums, yet, the percentage of cures in these advanced cases has been large. The report is of consecutive cases and not selected ones. You must, therefore, agree with me that subcutaneous injections of oil form an important part of the therapeutics of tuberculosis and an actual specific to the disease. Subcutaneous injections of oil are also of vital importance in the treatment of all other diseases.

Most of the text I have presented in various articles in a number of Medical Journals. It is reproduced in answer to the requests of a large volume of correspondence and is in no way complete. I offer the work only as a suggestion as to the greatness of subcutaneous injections of oil in the treatment of all manner of diseases.

T. B. K.







# SYNOPSIS OF CONTENTS.

## CHAPTER I.

**THE RENEWAL OF LIFE.** The production of stamina, vigor and vitality. The attainment of success. Life force. Mal-nutrition due to faulty nourishment the cause of lessened vitality. Old age and the prevention of senility. The vital organs. Brain. Heart. Lungs. Kidneys. Liver. Other organs and glands. The cachexia of cancer. The production of immunity from tuberculosis. Other therapeutic indications for subcutaneous injections of oil.

## CHAPTER II.

**THE MAKING OF THE ACME OF ABUNDANT HEALTHY LIFE FORCE OF MAN OR HEALTHY TEMPERAMENT.** Temperaments, diathesis, cachexias, all the direct result of habits of nutrition. Their relation to humanity and disease. Subcutaneous injections of oil and the establishing of the habit of assimilating fat and oil in the production of a healthy temperament, constitution, stamina, vigor and longevity; and, in overcoming disease due to heredity or atavism and diathesis, nervous diseases, mal-nutrition, and those with cachexia.

## CHAPTER III.

**CURE THAT HIPPOCRATIC FACE OR THAT FLABBY FAT, AND YOU WILL POSSESS THE VIGOR FOR HEALTH AND REVIVE THE FIRES OF LIFE.**

## CHAPTER IV.

**THE CURE OF CONSUMPTION BY FEEDING THE PATIENT WITH SUBCUTANEOUS INJECTIONS OF OIL.** Arguments for the treatment. Tuberculosis a disease of mal-nutrition. Nutrition the prime requisite of cure. Anorexia prevents tubercular patients from eating a sufficiency of fats. Absorption of fats from the fumes of whale oil vats. The digestion of fats by the white blood cells. Subcutaneous injections of oil produce a great amount of fat in a dog. Subcutaneous injections of oil meet all of the pathological conditions of the disease tuberculosis.

## CHAPTER V.

**MAL-NUTRITION AS A MEANS OF FURNISHING THE SOIL FOR THE DISEASE TUBERCULOSIS—FAT FOODS IN ITS PREVENTION AND CURE AS POINTED OUT BY THE HISTORY AND LITERATURE OF ALL CENTURIES.** Literature on tuberculosis. A review of the literature in reference to fat feeding in the cure of tuberculosis. The influence of a digestive habit in the production of tuberculosis, and the indications for treatment drawn therefrom. Pre-tubercular condition caused by a habit of not eating and non-digestion of fats.



## CHAPTER VI.

THE CAUSES OF CONSUMPTION INDICATE THE USE OF OILS INJECTED SUBCUTANEOUSLY AS A CURE. Pre-tubercular state or condition is caused primarily from the non-eating and non-digestion of fatty foods. The North American Indians, South Sea Islanders, and Negroes, who have tuberculosis. The Esquimaux are the only people said to be free from tuberculosis. The habit of not eating fats leads to their non-digestion, mal-nutrition and tuberculosis.

## CHAPTER VII.

BIOLOGY INDICATES THE USE OF OIL INJECTED SUBCUTANEOUSLY AS A CURE FOR CONSUMPTION. Evolution of living matter. Living matter characterized by its power of assimilation. Before the tubercle bacilli can grow it must first find a suitable soil. Weakened non-resistance of tissue comes from mal-nutrition. Nutrition built up with oil injections. The germ dies naturally through the decline of those conditions upon which it feeds. Foods used in the supply of heat. Characteristics of living matter. Nutrition the principal in the maintenance of life.

## CHAPTER VIII.

PHYSIOLOGICAL THERAPEUTICS INDICATE THE USE OF OILS INJECTED SUBCUTANEOUSLY AS A CURE FOR CONSUMPTION. Fats the most powerful of any substance used in the production of potential energy and heat. Digestion and assimilation of fats and oils from the intestine. The similarity between the digestion of oil from the intestine to that subcutaneously injected. Theories of immunity. Subcutaneous injections of oil produce immediate growth of blood cells. Oils injected subcutaneously meet every indication for the cure of consumption in a direct physiological manner.

## CHAPTER IX.

THE EARLY DIAGNOSIS AND SYMPTOMS OF CONSUMPTION—ARGUMENTS DRAWN THEREFROM FOR THE SUBCUTANEOUS INJECTIONS OF OILS. Diagnosis of consumption. Connection between phosphatic and fat assimilation. Symptoms which call for subcutaneous injections of oils.

## CHAPTER X.

PATHOLOGY OF CONSUMPTION—ARGUMENTS FOR ITS CURE WITH SUBCUTANEOUS INJECTIONS OF OIL. Nutrition furnished for impoverished blood cells, and the formation of new tissue. Subcutaneous injections of oil destroy the tubercle bacilli and disease germs of the lungs.

## CHAPTER XI.

FAT, THE GERM DESTROYER AND EQUALIZER OF THE BODY, WITH ESPECIAL REFERENCE TO OILS AND FATS IN THE PREVENTION AND CURE OF TUBERCULOSIS. Oil destroys yeast germs. Oil destroys tubercle bacilli and other disease germs. Heat and nutrition. Body heat a necessity for the prevention of tuberculosis and other diseases. Composition of human fat. Reasons why all fat people are not healthy. Adipose tissue the wealth of the body.



## CHAPTER XII.

LUNG EXCRETION AS RELATED TO TUBERCULOSIS—THE BODY HEAT AND FORCE—FAT FOODS IN THEIR MAINTENANCE FOR THE PREVENTION OF TUBERCULOSIS. The importance of body heat in the prevention of tuberculosis of the lungs. Excretion of the lungs. Co-relation of excretory organs. Cold climate accustoms the body to the production of more heat. Adipose tissue the stored fuel of the body. Consumptives are deficient in heat production.

## CHAPTER XIII.

LUNG DEVELOPMENT—THE LUNGS BOTH GIVE AND TAKE.

## CHAPTER XIV.

METHOD OF MAKING THE SUBCUTANEOUS INJECTIONS OF OIL. Cut of author's special syringe for subcutaneous injections of oil.

## CHAPTER XV.

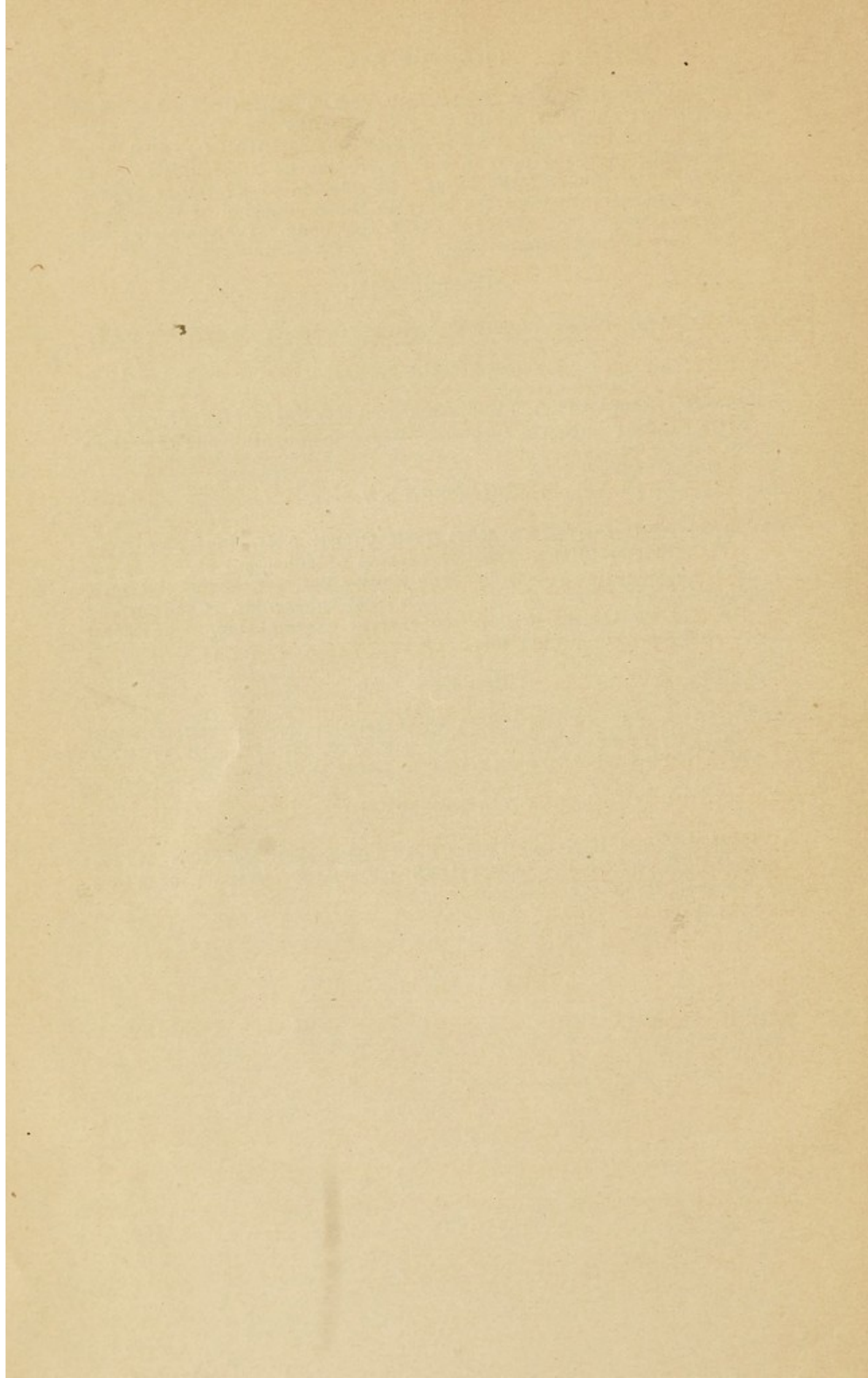
DIETING AND COOKING FOR THE CURE AND PREVENTION OF CONSUMPTION. The prevention of consumption. Diet for the consumptive invalid. The milk diet. Koumiss. Liquid nourishment. Diet for the convalescent tubercular. Cooking and the diet for the prevention and cure of consumption. The secret of making thin people fat.

## CHAPTER XVI.

MEDICINES AND OTHER MEANS WHICH I HAVE FOUND USEFUL IN THE TREATMENT OF TUBERCULOSIS OTHER THAN THE SUBCUTANEOUS INJECTIONS OF OIL.

## CHAPTER XVII.

A DEMONSTRATION OF THE CURE OF CONSUMPTION WITH SUBCUTANEOUS INJECTIONS OF OILS. Report of cases treated. Summary.





## CHAPTER I.

### THE RENEWAL OF LIFE.\*

**THE PRODUCTION OF STAMINA, VIGOR AND VITALITY. THE ATTAINMENT OF SUCCESS. LIFE FORCE. MAL-NUTRITION DUE TO FAULTY NOURISHMENT THE CAUSE OF LESSENERD VITALITY. OLD AGE AND THE PREVENTION OF SENILITY. THE VITAL ORGANS, BRAIN, HEART, LUNGS, KIDNEYS, LIVER AND OTHER ORGANS AND GLANDS. THE CACHEXIA OF CANCER. THE PRODUCTION OF IMMUNITY FROM TUBERCULOSIS. OTHER THERAPEUTIC INDICATIONS FOR SUBCUTANEOUS INJECTION OF OIL.**

#### Stamina, Vigor and Vitality.

Ask any healthy real old person if he is fond of fat foods and if he always has been. I have asked this question of every healthy real old person with whom I have come in contact for the past ten years, and every one of them has answered that he has always eaten a good supply of fats in some form or other. From the observation of a large number of individuals I am satisfied that stamina, vigor and vitality come more from the eating and assimilation of fat foods than of all other things.

If we inherit these habits from our ancestors I believe it to be true that we are blessed with a better constitution and a greater abundance of life and health

\*Presented by the author through the Medico-Legal Society of New York, and in the Medico-Legal Journal.



than we would be if from a line of poorly nourished forebears. The amount of fat which the blood contains varies according to the amount eaten and assimilated.

The infant inherits the richness of its fat. Some infants it is needless to say are better nourished than others. The richness of its fat would not alone affect the adipose or fat tissue, but would affect every tissue of the body, from the marrow of the bones to the entire nervous system. In treating people the remark is often made that it is not natural for them to become fat, because their parents were thin; or from another party that they should gain in weight easily, because their parents were fleshy.

Since all physiological actions, such as digestion and assimilation, are the result of inherited habits, it is probable that the habit of eating, and the assimilation of certain foods become somewhat fixed. Thus the Eskimos do not eat any vegetables whatever, and cannot seem to tolerate them. They can, however, eat several pounds of fat at one meal, and it is well to remark here that they are free from tuberculosis, and also intestinal catarrhs and appendicitis. It is also said that their teeth never decay even among the aged. Individuals among all races who eat large quantities of fat are not likely to be affected with any disease.

That fat or oil exerts a great influence upon living matter, life and energy, conclusions may be reached from the facts: that it forms a part of most cells and tissues of the body and that the adipose tissue is the first to be drawn upon to supply nourishment and fuel in case of sickness or lack of food. In protoplasm even of the lowest type it is common to find under the microscope granules containing fatty matter. Fatty matter but not in the form of adipose tissue makes up a large



portion of the brain and is found thus in many vital fluids, in the liver and blood. Hair looks dead when there is not sufficient oil from the scalp to nourish it.

Children are the creatures of imitation. If parents like fat foods it is quite likely that their children will, but if they do not they should be taught their value. The only way that we can assimilate fat foods well is to constantly eat them and form the habit of assimilating them. When fat foods cannot be assimilated well, the subcutaneous injections of oil will, it seems, start up the machinery of the body to their use, and by training the person to a fat diet, we soon have him again running under full heat, force, vigor, vim and vitality. He is converted from a machine of low to high power.

### **The Attainment of Success.**

The attainment of success often depends upon our physical constitution. Some ambitions are higher than their physical conditions will allow them to reach. Thus, this morning a patient came to me to be treated with subcutaneous injections of oil for a weakened constitution. She said that her ambition was to come before the public as a singer. She had a beautiful voice, but lacked the physical constitution. This constitution we are going to give her by training the system to take up fats and oils and by training the intestine to assimilate fats. Her lungs will develop and in proportion to the amount of fat assimilated will come strength and vitality. If we could assimilate all the fat which we could eat and then by training or directing the energy and force that could thus be generated into work, there would be much greater things accomplished. When this becomes better understood and a few generations have followed these precepts, then



there will be a race of men like gods. Then men will be better able to use the force, heat and vitality which comes from fat foods.

While we should exercise and exert ourselves only in proportion to the amount of carbon foods in our diet, we should on the other hand exert ourselves sufficiently to use up this carbon and not allow it to be stored up in the body in too great a quantity. It is said that every individual has his own co-efficient of heat production, depending upon the amount of heat producing foods eaten and assimilated and the activity of tissue changes.

### **Life Force.**

Life is the force and power of the body and is dependent upon nutrition and air. The body of itself from infancy to a certain age of the individual is a storehouse of nutrition from which the blood may draw, and when this blood circulates to the lungs it gives up carbon and takes in an amount of oxygen which corresponds to the amount of carbon excreted. It is this chemical exchange which produces the life, heat and force of the body. The oxygen is derived from the air; the question therefore remains: From whence do we derive the carbon? This can come from only one source. It must be derived from that which is taken into the body for nourishment. The new born babe has a certain amount of carbon stored in its body, in the fat tissues, in the fat deposited between muscular tissue, and in the marrow of its bones. Sugar is a carbo-hydrate and fat is a hydro-carbon, but fat supplies about two and one-half times more force and heat than any other substance used as food. It is therefore the most important in the production of life. Oxygen,



carbon and hydrogen compose 94.6 per cent. of the human body, in the proportion of oxygen 72.0, carbon 13.5, and hydrogen 9.01.

Milk, the natural food of the young (but not sufficient for the aged), has been described as a thin syrup which holds in suspension small globules of oil. The infant, therefore, sustains its life from the nutrition derived from milk, which, being absorbed and taken into the blood, gives force and heat and life by the chemical exchange of carbon, its sugar and fats, for oxygen, which goes on in the lungs through our breathing.

Life force varies in different individuals and different animals, depending largely upon the amount of heat generated from foods and from the activity of metabolism. Because the assimilation becomes deficient with age, old people are always cold and produce less heat. They do not absorb and consequently do not breathe out sufficient carbon foods. For this reason subcutaneous injections of oil will supply the fuel which is lacking and which without proper training they cannot assimilate from their diet.

### **We Should Not Become Too Fat.**

Lest some one think that I am advocating a race of fat people, it will be well to explain here that we should not become too fat. Only a plump amount of fatness is to be recommended. Rather than too much fat we should breathe deep enough and generate and use a high power of nerve energy. Increased activity promotes rapid change from oxidation, but the two processes of waste and repair should be equal, for if the waste exceed the repair we decay. All fat people are



not healthy mainly for the reason that fat varies greatly as to its amount of richness in oil. Some fat is watery and then it is a drone which requires to be fed. When fat tissue is once formed it should be kept well fed with oil so that it may be useful and a storehouse from which fuel may be drawn. Fat people who withdraw fats from their diet are subject to watery fat, gall stones, liver diseases, weak heart, intestinal catarrhs, diseases of the kidneys and many other diseases. There are perhaps as many fat people who suffer from being poorly nourished as thin people. These fleshy people with watery fat often receive great benefit from the subcutaneous injections of oil in that it nourishes the connective tissues and changes their fat from a drone to a storehouse of energy.

**Mal-Nutrition Due to Faulty Nourishment the Cause of  
Lessened Vitality.**

Mal-nutrition due to faulty nourishment is the prevalent condition of the human race. It is the forerunner and often the cause of lessened vitality, of incapacity for work or enjoyment, of chronic diseases, and of more suffering than all other causes combined. The rapid wasting produced by high fever in acute diseases indicates rapid metabolism and the need of the body for fuel to overcome disease. It is Nature's remedy and plan of the body to combat disease. Many people die because the tissues are so poorly nourished that they are insufficient in fuel. It is needless to say that living tissues cannot live without food.

**Old Age and the Prevention of Senility.**

Wheat will not grow in worn-out soil. The most prominent characteristic of old age and senility is lack



of cell growth. The repair of cells and tissues is not equal to the waste, which is shown first by a shrinking away of the fat tissues of the body, leaving the skin dry and wrinkled. Then the fat or marrow of the bones gives way to cancellous or bony tissues. The bones and all tissues of the body shrink in size, and become less elastic, and as the oily parts of the fats and the fats from all tissues of the body disappear the arteries become hardened. As senility approaches or advances and as the condition of faulty assimilation supervenes all organs of the body become defective. As all living tissues are characterized by constant change, and when repair does not equal the waste to decay, then to keep up growth and prevent decay we must try to keep up nourishment and assimilation. The growth of all living tissues has a certain limit, and when old age comes we cease to keep up good assimilation. Oil subcutaneously injected is the most readily absorbable tissue builder and will do more to increase the activity and assimilative powers of the blood cells and individual organs of the body than any other means.

### **Longevity and Perpetual Youth.**

If constant repair of tissues with assimilation and displacement of nutrition could be maintained as perfect as in youth, then youth would be perpetual. Therefore, a perfect youthful body if free from disease and deformity, should maintain that perfection by the perfect regulation of nutrition, by which I mean: that each individual cell of the body should be maintained in a constant and proper equilibrium of nutrition.

Oil, when injected subcutaneously, is a substance upon which the white corpuscles feed, an affinity, and

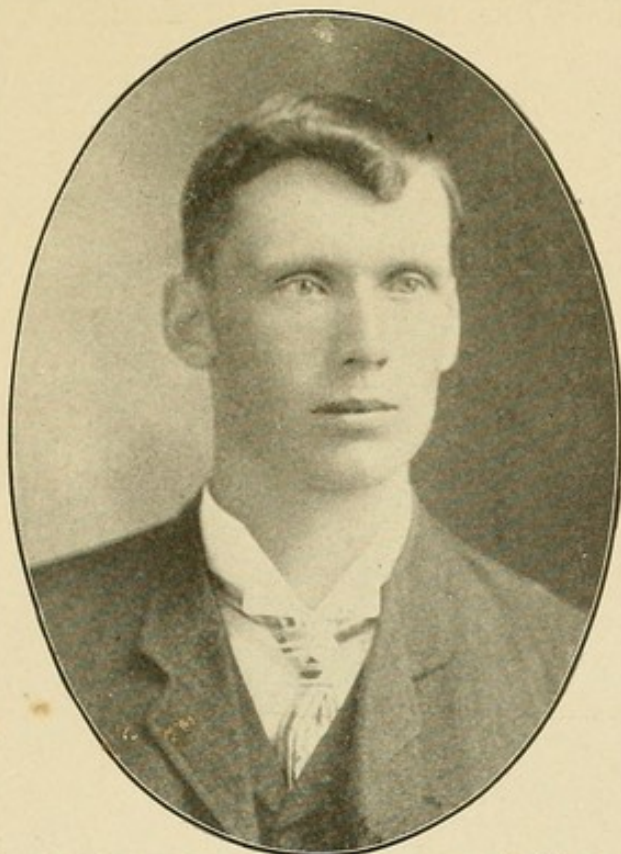


since the fat tissues of the body are those which shrink away first in old age, it will be seen that by injecting oil thus we supply the fat tissue oil, the marrow of the bones with oil, and by this oil prevent the hardening and bony calcareous formations. Through this feeding or nutrition we increase the activity and individual cell activity of every organ and tissue of the body. Most cases of early senility with a shrinking in nutritive conditions, together with the common diseases of old age, such as chronic bronchitis, may be relieved by the injections of oil subcutaneously.

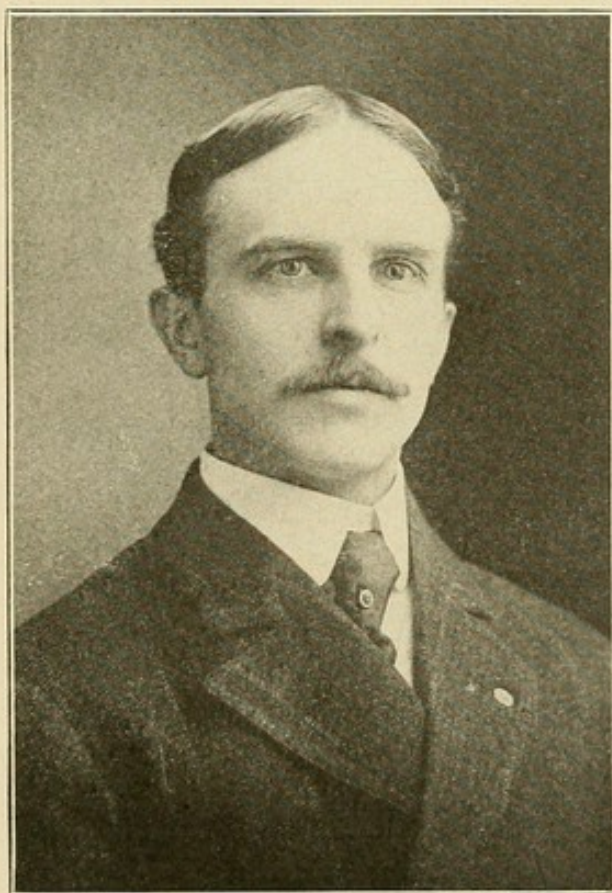
It is a physiological fact that the amount of carbon-dioxid exhaled by the lungs of males increases regularly from the eighth to the thirtieth year of age, and from then on until about fifty this amount remains at about the same preservation, or stationary. After the fiftieth year and as age advances the amount of carbon-dioxid gradually declines until it scarcely equals the amount exhaled at the tenth year of age. Women do not exhale as much carbon-dioxide as men of equal ages. The amount increases gradually from the eighth year to that of puberty, after which it remains in the same state of preservation until "the change of life" takes place, when the carbon-dioxid exhaled declines at the same rate as in old men.

There is a relation closely connected as we have here tried to point out, all along, between the amount of carbon-dioxid exhaled (the used power of the body) and the amount of stamina, vigor and vitality which the body contains. If we could keep this power at the same preservation, after the age of forty as it has been before, then enfeeblement and old age would not leave its marks. But it is evident that the carbon forming foods are not assimilated so well after the age



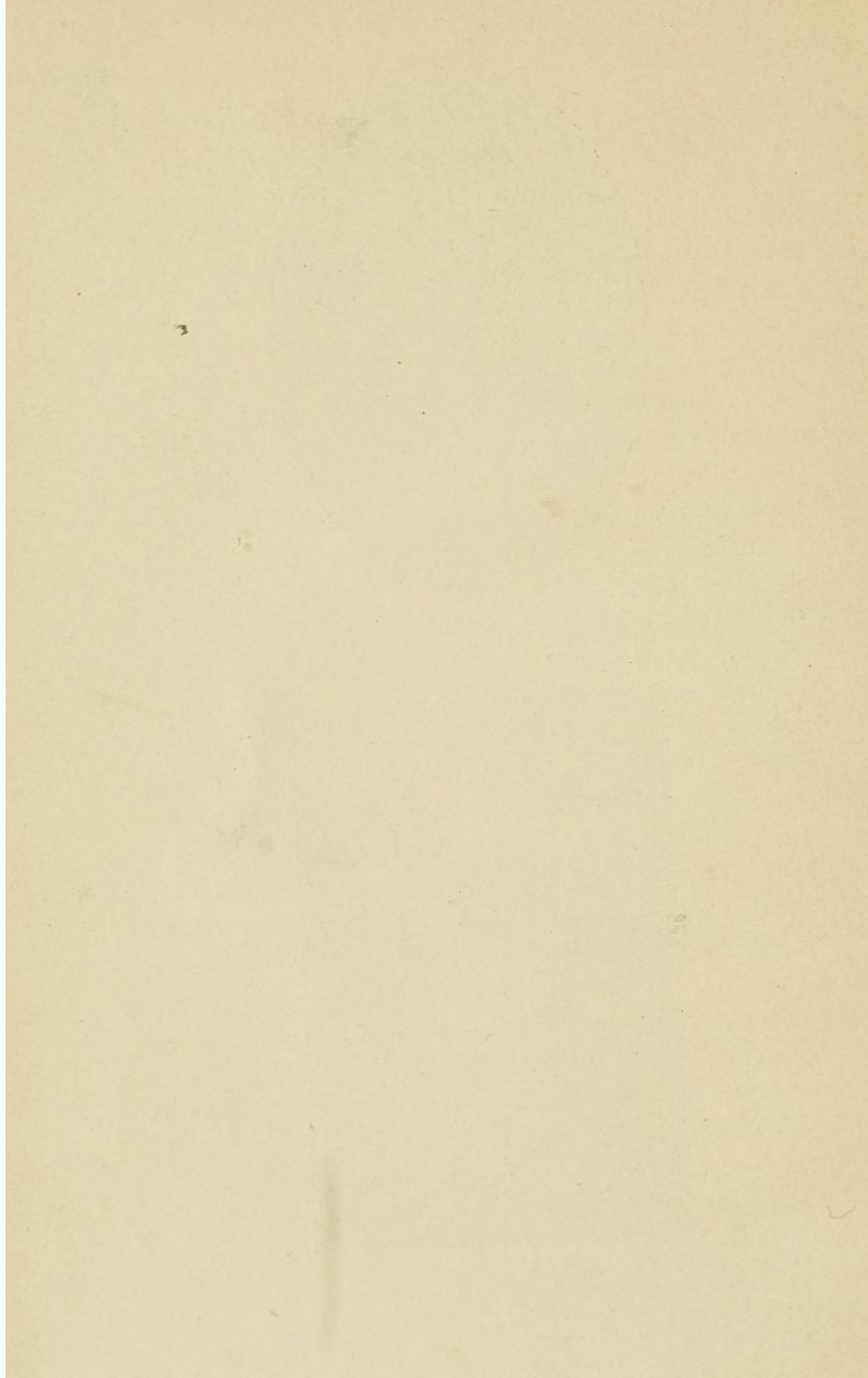


**Case IV.** Mr. F. S., who gained 14 pounds in weight and recovered entirely from pulmonary tuberculosis. Treatment: Subcutaneous injections of oil. He has remained well for a period of over four years and has been actively engaged. His life was renewed.



**Case V.** Mr. F. B., who gained 12 pounds in weight and recovered entirely from pulmonary tuberculosis. Treatment: Subcutaneous injections of oil. He has since married, has been actively engaged, and has remained well for a period of over four years. His life was renewed.







of forty, because the carbon-dioxid can come from only one source—the food assimilated—and that which has been stored in the body. The stored fuel of the body, the fat from every tissue yields to age as it advances and we become wrinkled and shriveled and shorter and smaller every way.

If the body had been able to assimilate the fats from the diet it would not have been necessary, as Metchnikoff puts it, for the leucocytes to feed upon and devour the fatty tissues of the body. As it is evident from the facts that carbon is not excreted by the lungs and exchanged for oxygen, so well after the age of forty, but that it gradually declines, it proves from this fact alone that fats (hydro-carbons) are not so well assimilated at this age, and this explains the reason for lessened carbon excretion, the shrinking away of the fat and fuel tissues of the body and the advances of senility. The fats not being assimilated from the intestine the subcutaneous injections of oil should be used to overcome the advances of age, and by this means necessarily increase the amount of carbon-dioxid exhaled in the production of increased heat and life and vigor and health. The habit of assimilating fats from the intestine should be re-established.

But the individual organs of the body, the lungs, heart, kidneys and liver, etc., like individual cells tire and lack in life or vitality by not being properly nourished, and thus become affected by old age and disease. As it is the fat foods which supply more heat and force and vitality than any other foods, and as they are not well absorbed in the aged, a course of treatment with oils injected subcutaneously offers increased health and vigor. The patients I have treated for lack of vitality have experienced pleasing results in the im-



provement of nutrition, force and vitality; in fact it would seem that there is produced by this method a renewal of life.

### **The Brain and Nervous System.**

The brain and nervous system contain a large percentage of oily matter. The various manifestations of nerve force are brought about by the transformation of heat from oxidizable foods or fuel.

The grey matter of the brain is an oily substance. The medulary or myelin sheath or white substance of Schwan is a fatty substance. It is said to be made up of a fine reticulum in the meshes of which is embedded bright fatty material.

The influence of fat and oil nutrition upon the functions of the brain and nervous system, and thus upon the entire body, must be very great, for upon the nervous system greatly depend the other tissues of the body as to their metabolism, which is shown by the fact that the heat of a limb falls after division of its nerve, and also in a limb which is paralyzed.

### **The Heart.**

The heart is an organ which must work constantly to keep up the flow of nutrition so essential to the life of the body. As it constantly works it must require vitality and force in abundance. Its muscular fibers must possess force and power never to complain of being tired, and great vital elasticity to constantly contract and expand, and to increase its work in times of exertion.

No article that man could make could stand this contraction and expansion and stretching of fibers



without very soon being worn out; it is, therefore, reasonable to expect very rapid tissue metamorphosis in an organ working like the heart.

In many acute diseases, especially with fever, it is often the heart which fails because the stored fuel of the body has been consumed and there remains nothing for the heart to feed upon and keep up its nutrition and vitality. So long as the heart is above a certain standard, most all diseases are considered of a favorable prognosis. Therefore, anything which can supply the material to produce force, heat and vitality to the heart is a therapeutic agent of the greatest efficiency, and as all vital processes have their origin in the energy liberated by the chemical decompositions going on in the organism, it follows, that oils injected subcutaneously and taken up by the blood, constitute a means of increasing metabolic activity of any organ and all parts of the body.

In the treatment of many cases of tuberculosis, I have frequently encountered cases in which there existed some form of chronic carditis. It is in these conditions of chronic heart inflammation which may exist in some part of the organ that I particularly recommend the subcutaneous injections of oil. Not to the exclusion of other remedies, for I have found the greatest good to come by using other alteratives and the oil. Besides the nutritive and fuel value of the oil in producing vitality, force and heat, I speak of it as an alterative, for it is the greatest of all alteratives and in these cases I have found it to be almost of vital importance.

### **The Lungs.**

The lungs are the smokestack of the human engine and like the heart they must keep up with their con-



stant work. The exchange of carbon-dioxid for oxygen must go on, for this is the principle of life. The lungs being composed of a fine tissue which contracts and expands continually and being exposed to constant wear, they are not easily healed when once they become diseased, unless we are in a high state of nutrition. The lungs use up more heat and vitality than any other organ of the body. The lungs both give and take. They take away carbon and supply oxygen and in this chemical exchange the principle of life is produced. Lung exercise should be in proportion to the amount of carbon foods eaten. It should be just sufficient to oxidize the carbon foods eaten, for if there is not a good supply of carbon (carbo-hydrates and fats, or hydro-carbons) in the diet and a good store of fat in the tissues, if too much lung exercise is necessary to carry on the force of great exertion, then the fat being exhausted, other more vital tissues will be drawn upon. As a consequence of this the body would become exhausted.

When one is in the habit of eating and assimilating a good amount of fat the exhausted body soon recuperates. We should use our lungs just sufficiently to oxidize the carbon foods and not allow them to be stored up in too great a quantity as fat. The lungs will develop according to the amount of fats eaten, for this is excreted principally by the lungs. As the lungs use up a large amount of heat in carrying away a fine watery vapor, fats and heat producing foods are essential to their health. The results which I have accomplished in the treatment of tuberculosis of the lungs, prove absolutely that the subcutaneous injections of oil meet every indication in the treatment of



pulmonary tuberculosis or any chronic inflammation of the lungs.

### **The Kidneys.**

The kidneys are excretory organs and are essential to life, for without excretion man would poison himself; they, therefore, play a very important role in the maintenance of life.

As we have compared the lungs to the smokestack, we may say that the kidneys are the ash grate of the human engine. If the ashes are not kept raked away, the body soon clogs and there is lessened draft for the warming fire. Heat would soon diminish and life become extinct. The co-relation of the lungs and kidneys in excretion is well known and when either one does not do their work well the other tries to aid it.

One of the first places and where we usually find fat tissue is around the kidneys. In many individuals the fat tissue may have become atrophied, leaving only its connective tissue. As fat tissue is a great storehouse of reserve tissue material, which fluctuates greatly, according to the needs of the body, and in covering organs protects them, it is safe to say that a certain amount of healthy rich fat about the kidneys would be a prophylactic against their becoming diseased, and in case that the kidneys should become irritated or inflamed, it is reasonable to believe that this fat would greatly aid in quickly re-building their tissue and overcoming their disease. On the other hand atrophied fat or tissue of poor quality, that is, watery fat, would be a drone which would sap the kidneys of their vitality. Rich oily fat is the healthy fat, rich in protection, rich as a treasure storehouse.

My personal observation in the treatment of a



variety of the forms of Bright's disease or inflammation of the kidneys is that the oils injected subcutaneously have acted as an alterative and tissue reconstructive, so as to greatly aid and to produce some very remarkable recoveries from chronic Bright's disease.

### **The Liver and Other Vital Glands and Organs.**

Fats and oils are useful to preserve the health of all the organs and tissues of the body. Oils injected subcutaneously are particularly useful in the treatment of diseases of the glandular system, and may be used for the treatment of gall-stones, catarrh of the bile ducts, and for atrophied conditions, and other diseases of the liver and for some conditions that may exist in other glandular organs. To prevent conditions of senility and diseases of mal-nutrition it is important to keep the liver healthy, for it has much to do with the process of nutrition, growth and repair.

### **The Cachexia of Cancer.**

Because of the great nutritive influence which subcutaneous injections of oil have upon the system, I believe that with the injections of oil after operation for cancer we will be enabled to prevent its return. The study of cancer for years has only gone to show that it is a nutritive change. "A return to fetal tissue," is an often repeated saying. Most all therapeutic measures of late years have been directed to increasing cell activity of the body and there is no greater means of doing this than by subcutaneous injections of oil.

One of the first cases which I treated when I commenced the practice of medicine was that of an epithe-



lioma of the uterus, in a woman of about forty-five years of age. As I had more time than patients, in my endeavor to cure the woman and meet the confidence which she put in me, I read all the literature relative to the subject of cancer then in the Newberry library, there being some several hundred articles published in various medical journals and textbooks up to that time. We tried every method advocated thoroughly. At the time I commenced to treat her the woman was considered too far advanced to operate upon. She lived about a year and finally died from exhaustion. There had been no hemorrhage and the disease had not extended to any vital organ. But she was worn out, thin and emaciated to skin and bones. Had this woman been operated upon and built up with subcutaneous injections of oil, built up to the highest point of energy and vitality, I think that there would have been a renewal of life, which would have prevented the return of the disease. It is well known that cancer usually affects those organs which go out of use, as the uterus and the breast of women after menopause, when the body is declining and other nutritive changes are taking place.

In the *Annals of Gynaecology and Paediatrics*, June, 1901, Vol. 14, No. 9, Dr. A. J. Collins Warren, Professor of Surgery in the Harvard University, says regarding cancer: "In rare cases the regenerative processes, for a time at least, seem to exceed the processes of growth in cancer, and under these circumstances we observe a tendency to a spontaneous cure. Such a case occurred recently at the Middlesex Hospital, London. A patient over eighty years of age was admitted to the cancer ward, with cancer of the breast, recurring after operation. At the end of a year, dur-



ing which time there had been no treatment of any kind, the nodules had disappeared, and she was apparently well. This tendency should be taken into account in estimating the value of any drug."

Now, if there are powers of the body which are sufficient in rare cases to overcome cancer, then these powers should be strengthened by building up nutrition to its highest point, and this can only be done with the subcutaneous injections of oil. Particularly is this true when the cachexia or mal-nutrition are prominent, as they generally are, and when they are not it is these exceptional cases which remain well after early operation. It would, therefore, seem that after surgical operation for the removal of cancer, subcutaneous feeding with oils should be useful to overcome the disease by building up nutrition, so that cancer would not return. The following, taken from the January, 1909, publication of "The Doctor," is interesting regarding the curability of cancer:

"Bainbridge, in the *New York Medical Journal*, points out that the word curable, as applied to cancer, is, as one may readily appreciate, a relative term. Strictly speaking, we do not cure the cancer—we remove it; and in the vast majority of cases, when it is impossible to remove the cancer, it is impossible to effect a cure of the patient. This is in line with the statement previously made that to-day surgical procedure is the only dependable means of eradication of malignancy. Then, too, there are those who hold that it is impossible to fix a time limit upon recurrence, and who deny that if the disease does not return in three or five years, or any number of years, the case may be pronounced cured. On the other hand, statistics amply justify the so-called three-year limit. However



this may be, we know that in a very limited number of cases cancer disappears of itself, with no further manifestations of the disease. This is common in mouse cancer, 30 per cent. of those cases which have been recorded being said to heal spontaneously. In man it would be more than foolish to fold our hands and wait patiently for an epithelioma or a sarcoma to disappear spontaneously because so-called cancer in mice is said to do so in a large proportion of cases. We must remember that it is a serious question whether cancer in the mouse is at all analogous to cancer in man, and we do know that spontaneous cure in the human subject is extremely rare.—*The Medical Standard.*”

In mice which have cancer, experimentally produced, it is apparent that the same conditions of body as to nutrition and age are not present, or the same as they would be if they had come by their cancers in a natural way, or as a natural consequence of some perverted condition of nutrition. These mice evidently were healthy and able to assimilate and nourish their system, so as to overcome the disease, and in such a healthy condition it is likely that man would be equally immune from cancer. It is this healthy condition of the body that I wish to produce, with subcutaneous injections of oil, to prevent the return of cancer after operation, and, perhaps, in some cases to cure cancer. Thus I have treated and cured with subcutaneous injections of oil and without operation two cases of chronic ulcer of the face and one of the throat, which had existed for more than a year and which were diagnosed and considered cancers.



### Immunity From Tuberculosis.

Tuberculosis is a disease of mal-nutrition. This mal-nutrition comes from not eating fats and oils, or if they are eaten they are only partially assimilated. People who eat and assimilate fats and oils in abundance do not have tuberculosis.

To possess stamina, vigor and vitality in its greatest abundance we must possess a body which is capable of producing or generating large quantities of "steam" heat. When an animal dies of starvation it dies from lack of heat, the fuel of the body having been used up, the body is no longer capable of maintaining its proper temperature, to say nothing of that which is used up in energy and movement. Animals that are cold and dying from starvation are revived more from the application of heat than from the administration of food. It is found that when an animal is deprived of food there is always that ultimate loss of heat, and when the body has lost about two-fifths of its weight the loss of heat is very rapid and death ensues.

People who suffer from thinness, mal-nutrition, who are lacking in stamina, vigor and vitality, suffer from loss of heat production, in a way similar to animals which have been experimented upon and the effects of starvation watched. Thus in starving animals, physiologists tell us that at the beginning the variations in the daily temperature become more marked, the daily fluctuations amounting to  $5^{\circ}$  or  $6^{\circ}$  F., instead of  $1^{\circ}$  or  $2^{\circ}$  F. as in health. It is this variation in temperature which is so characteristic of these individuals who do not assimilate fats and as a consequence are weakened in vitality and subject to colds, who do not ever enjoy vigorous health, are delicate,



easily tired and are subject to tuberculosis. In people who do not assimilate fats in sufficient quantities, a comparative non-assimilation as it were, the exhalations from the lungs and skin and mucous membranes are fetid, showing a tendency to decomposition, so characteristic of badly nourished tissues. Another consequence of not taking in sufficient quantities or not assimilating fats (hydro-carbons) is that the amount of carbon-dioxid given out and the amount of oxygen taken in is diminished, and as a consequence there is less heat, stamina, vigor and vitality and lowered resistance to disease. Those then who are suffering from starvation of their tissues, and this applies to many, to a greater or less degree, most of whom are thin, but many of whom possess a watery, poorly nourished adipose, are unable to generate sufficient energy and heat, because the oxygen which we breathe in must act upon the carbon in our blood, and if this carbon cannot be taken up readily from the diet in the form of fat, it must be drawn from the tissues which in the above instances are already bankrupt. To overcome this condition is to build up an immunity from tuberculosis and to produce constitution, stamina and vigor.

It does not require the aid of the microscope to determine those who are subject to tuberculosis. The first predisposing symptoms of tuberculosis are due to faulty assimilation and the non-use of fats, which brings about lessened heat production and lowered vitality. Then we have dainty eaters who abhor fats and as a consequence all of these people are poorly nourished. The Hippocratic face, or countenance of the tuberculous, from Hippocrates's description, has followed largely through the literature on this disease in the description of its symptomatology. It is the



face and symptoms of those who do not live upon a proper diet, the result of not eating and not assimilating fat. You will find it an accurate guide. "A sharp nose, hollow eyes, temples depressed, the ears cold and contracted, the skin above forehead hard, stretched and dry, all the face of a greenish color or black or livid, are mortal signs." There are also a few poorly nourished fat people who are subject to tuberculosis. Their fat is watery and made up from the eating of starches and sugars. In fact any person who does not assimilate fat is subject to tuberculosis. If these people who are suffering from mal-nutrition were treated with subcutaneous injections of oil and built up to rugged health and their digestions trained so that they would assimilate fats and oils, then they would be immune from tuberculosis. If all appreciated these truths then there would be an end to the disease. Tuberculosis would no longer exist among us.

Subcutaneous injections of oil and the establishing of a habit of assimilating fats cure consumption. You will notice that I say cure consumption and not arrest the disease. When the lesions are healed and the habit of assimilating fats is established the disease is cured and the consumptive habit cured. By the consumptive habit I mean the habit of not assimilating fats.

That the subcutaneous injections of oil do cure consumption, which remains a permanent cure when the habit of assimilating fats is established, it is a positive and patent fact, as I have proven in seventy-three cases over a period of several years.

#### **Other Therapeutic Indications for Oil Injections.**

To renew life there are often many diseases which



have to be relieved and cured. Nutrition if raised to its highest point will put the body in such condition that it will resist most diseases and aid it to cure them. Oil injected into the tissues enters the blood in the same form as if it were introduced into the body through the complicated apparatus of digestion, except that larger quantities may be used. Few poorly nourished people assimilate oil. With poorly nourished people there is always a comparative non-assimilation of fats and oils; therefore, nutrition of the body can best be built up with oil injections, and by this means I have cured many cases with diseases considered incurable. Oil injected subcutaneously will be found useful in the treatment of many nervous diseases, such as chorea, brain exhaustion and neurasthenia, some forms of insanity, as paresis, and should be useful in the treatment of epilepsy, as here there seems to be an evacuation of the fatty substance of nerve cells. In the treatment of headaches and neuralgia I have experienced beneficial results. A case of locomotor ataxia was benefited from oil injections.

Cod liver oil was first brought to the attention of the medical profession for use in the treatment of rheumatism. Oil injections are of great benefit in the treatment of rheumatism. I have had most remarkable results and cured a number of cases of catarrh of the intestine, or collitis, with subcutaneous injections of oil. A large number of supposed incurable skin diseases have been cured, one being a severe ichthyosis over the entire back. Excellent results are obtained in chronic acne. A number of cases of lupus responded quickly to treatment. The nutrition and cell activity produced by the injections of oil aids the body to overcome many other chronic skin diseases, such as



eczema, and I would suggest that those who are in a position to do so should try the same in the treatment of leprosy. The skin of all patients treated with subcutaneous injections of oil becomes very healthy, a fact which is always very noticeable. A number of cases of very malignant syphilis have been treated with good results. Some of these patients could not take mercury. The injections of oil are of great value in tertiary syphilis, and to those who have recovered from the disease but are anemic. For all forms of anemia, and particularly pernicious anemia, there is nothing of so much value as the oil injections. In fact it would seem that no disease to which flesh is heir could not be benefited by improving nutrition and stimulating cell activity and repair with subcutaneous injections of oil.

When tired nature becomes exhausted she calls for sleep. She calls for sleep that she may replenish the fires which have been consuming and exhausting the fuel of the body. The muscles relax and become inactive, and all functions are at their lowest ebb. The amount of carbon dioxid excreted by the lungs is lessened and in place of making power the carbon foods are saved by the body in its fat tissues and in the fat between muscular fibres. The circulating flow of nutrition (the blood) goes on and replenishes the fuel to the tired muscles, the organs and nervous system, and when this has been done we awaken refreshed. Injections of oil do often lessen the required amount of sleep and refreshen the system by supplying the nutrition in a form readily acceptable by the blood. I have frequently treated patients who were under long severe mental strain, who were enabled by the injections of oils to do so. One patient worked forty-



eight hours at a stretch without sleep and did not experience any ill effects from the prolonged strain. He was under treatment with injections of oil and says that he would not have been able to have withstood such strain without the oil injections. This man is a physician and believes in the injections of oil for the renewal of life. We all love to live and we wish to live as long and useful lives as is compatible with health. To prolong both life and health one of the great essentials I believe is to eat a good supply of fatty food continuously and thereby establish and keep up the habit of assimilating fats and oils. As age advances it is evident that fatty foods are not assimilated as well or they would take the place of the fat tissue absorbed from the body. In old age there is a comparative non-assimilation of fats. The conditions of advancing age, many other conditions and diseases, some of which we have mentioned, should, therefore, be met: first, by subcutaneous injections of oil; second, we should re-establish the habit of assimilating oils from the intestine.



## CHAPTER II.

Presented by the author in the Pacific Medical Journal, May, 1909.

### **THE MAKING OF THE ACME OF ABUNDANT HEALTHY LIFE FORCE OF MAN OR HEALTHY TEMPERAMENT.**

**TEMPERAMENTS, DIATHESIS, CACHEXIAS, ALL THE  
DIRECT RESULT OF HABITS OF NUTRITION.  
THEIR RELATION TO HUMANITY AND DISEASE.  
SUBCUTANEOUS INJECTIONS OF OIL AND THE  
ESTABLISHING OF THE HABIT OF ASSIMILAT-  
ING FAT AND OILS IN THE PRODUCTION OF A  
HEALTHY TEMPERAMENT, CONSTITUTION,  
STAMINA, VIGOR AND LONGEVITY; AND, IN  
OVERCOMING DISEASES DUE TO HEREDITY OR  
ATAVISM AND DIATHESIS, NERVOUS DISEASES,  
MAL-NUTRITION, AND THOSE WITH CACHEXIA.**

The greatest blessing and wealth which man can possibly possess is the acme of healthy life force in its greatest abundance. I do not mean mere existence without disease, but that condition of the body which is conducive to the highest degree of power, vigor, vitality, intensity, virility, pollence, tonicity, vivacity, energy, force, might, strength, endurance, perseverance, quickness, courage, reserve force, resolution, industry, activity, competency, aptitude, grace, skill, genius, beauty, and longevity, and is directly contrary to their opposite conditions.

In this type of healthy life, the heart, lungs, kidneys, liver and all organs and glands of the body pos-



sess a predominant energy and are not easily affected by disease. The person possessing such health lives long and grows old without the pronounced conditions of senility, providing, he continues in the habits of nutrition which have given him this constitution or temperament.

In this type of the acme of abundant healthy life force of man, there is a plump amount of rich adipose (by which I mean the fat contains a good proportion of oil, not serous watery fat), the blood and cells are well oxidized, the chest is broad, the lungs are healthy, the complexion good, the flesh firm, the figure consequently agreeable. The muscular and athletic are of this type, as Ajax, famous for his size and physical strength and beauty. The statues of the Apollo Belvedere and of the Farnese Hercules show the characteristics of this type, while our own President Roosevelt is a modern example of this healthy type of abundant life force. The strong, successful character, with nerves of steel, powerful muscles, a perfect digestion, overcomes all obstacles and is not easily left behind in the unrelenting race.

The mental faculties of those who possess this abundance of healthy life force, are certainly greater than they could possibly have been, had the same persons possessed bodies of less healthy patterns. The very health of this class enables in mind development. The minds of all healthy persons are not equally developed, it is true, because the mind or core of man is largely the product of evolution, endowment, environment, education, and many other conditions which cannot be entered into here. A person of this healthy type should propagate children blessed with the same good constitution. As to whether we maintain such



a constitution, either inherited or acquired, or squander it, will depend entirely upon our habits of nutrition. Before concluding this discourse I shall endeavor to show how this healthy type may be acquired, even from the unhealthy, and then how it may be maintained and life prolonged.

### **Temperaments Recognized by the Ancients.**

The ancients not cognizant of our modern pathology of disease, were, however, proficient in recognizing the type of man free from and prone to certain diseases. The doctrine of humors and their corresponding temperaments formed the very keystone of the arch of medicine. Hippocrates, 400 B. C., the father of medicine, from whose time medicine dates as a science, described four types of temperaments. They were the sanguine, the phlegmatic, the bilious or choleric, and the melancholic or atrabiliary, depending for their significance upon the solids and fluids of the body. Because of the perceptible truth expressed in the words of Hippocrates, they still live. It will be seen that this is a classification in reality according to the nutrition of the body, and not unlike the classification of temperaments and their production with some variation, which I propose to present. The ancient writers followed the classification of Hippocrates, while with some modification other writers added to it, so that the nervous temperament was soon accepted. Then we had classifications of temperaments which were founded upon the development and activity of the organs of the body, as the encephalic, the cerebral, and the phallic temperaments. It may be said that one temperament merges into another.



There is usually in most all cases of man a mixed temperament. With tribes of savages the temperaments of all people of the tribes when living in their original, uncivilized state, are more alike, for the reason that their habits of nutrition are similar. So it will be seen, that there is a great variety of temperaments, all depending entirely upon the habits of nutrition; and the comparative assimilation of fat foods, as I shall here try to establish. We shall divide the constitutions of people, or their temperaments, into four grand divisions. These four temperaments I shall vary some from the description given by other writers, in that I shall try to describe the reasons for them and show how one can be converted into any of the other temperaments, or how those of lower grade can be built up; while the higher temperaments may degenerate through improper nutrition. We may indicate them as the healthy temperament or acme of health, already described; the obese temperament, the lymphatic or bilious temperament, and the poorly nourished or nervous temperament. I shall endeavor to establish that the varieties of temperament are dependent upon the comparative assimilation of fat foods; and, it is their complete assimilation which makes the healthy temperament; and, their comparative non-assimilation which makes the other types of temperaments or constitutions.

Temperaments have been defined by Dunglison as those individual differences which consist in such disproportion of parts, as regards volume and activity, as to sensibly modify the whole organism, but without interfering with the health. In the definition given by Williams he goes further by expounding that while the usual proportions of the different structures of the



bodies to each other constitute varieties of temperament, these structures or functions, though they can scarcely be called morbid, yet certainly give a proclivity to disease in the direction indicated by the temperaments.

### **The Greatness of Nutrition Over Mind.**

There was a time in my early practice of medicine that I treated many people by suggestion and gave much attention to mental or suggestive treatment and the psychology of disease, even going so far as to lecture and accept a chair on the subject in one of our colleges. At that time, no doubt, I would have said and believed that the mind had much more to do with developing the body and phases of temperament than I would today. A broader observation, the study of many people, both collectively and individually, and my studies and work upon tuberculosis and along the lines which I shall here present has convinced me that nutrition has practically everything to do in developing the body and much to do with the mental qualities of the mind, as to its irritability, "peace of mind," equilibrium, and power of application. Some poorly nourished person may say that he is sure that his mind is stronger than his body. This is probably so in cases of poorly nourished bodies, for, even here, the brain is highly nourished with the fats, which it must have. The grey matter of the brain is an oily substance, but the brain does not give this up, like the adipose tissue of the body, in circumstance of sickness or exigency of starvation. In starvation the brain loses only one per cent., while the body, more charitable, yields its fat to nourish all other tissues and



loses about two-fifths of its weight before death. It is safe to say that the minds of these poorly nourished people would have been better (no matter how good their minds may have been, or are, as has been observed in a number of celebrated authors) had these persons known how to nourish their bodies, so as to give constitution, strength and endurance. When the body becomes tired and exhausted, the brain is no longer able to work until rested, or at least the body is unable to carry on the desires of mind. There may be an ambition greater than the physical can accomplish, and if these people were given a good constitution they would accomplish more and make a greater success. We are not free agents, though we may consider ourselves as such, for the nutritive forces of life and energy form a resultant to the individual.

The highest type of health, which can come only from right and proper nourishment, produces an immunity from many diseases. Should the wave of interest be taken in nourishing the body properly, as we shall here describe, as it should, and has been taken in subjects of less importance, then more would be done for the good of mankind in the production of the highest type of life, health, happiness, freedom and immunity from disease than from all other means, medical or prophylactic.

### **The Obese Temperament or Constitution.**

The obese temperament is produced from an over-indulgence in the eating of albuminous and nitrogenous foods, starches and sugars, combined with naturally good assimilative powers for fats. Frequently there is also an over-indulgence in alcoholic liquors. It is not of the highest plane of health to become too



fat, so that this condition should be avoided. But when once an obese or large amount of adipose is formed, its reduction, if such is indicated, should be brought about with great care lest harmful results follow. The withdrawal of fats and oils from the diet of such a person is sure to be followed by flabby, anemic fat, general weakness and all of the conditions which flabby fat leads to, and which we will describe more fully under that temperament. When fats and oils are withdrawn from the diet of the obese, very frequently the liver becomes mal-nourished, inactive, often diseased, and gall stones are almost sure to follow. If reduction is brought about, it should be done by not allowing an over-indulgence in the albuminous foods, starches and sugars; but a sufficient supply of fats and oils should still be eaten, so as to keep the fat of the person well nourished, and thus avoid the diseases of flabby fat. Then an amply active life should be led to promote oxidation, that fuel or fat which would otherwise be stored in the body may be converted into heat and energy. In the withdrawals of the food other than fats, I have frequently treated these cases by injecting oil, and by the patients' activities have reduced their weight; and by the increased oil increased their oxidative power and health. The one condition which people of the obese temperament must ward against is the condition of flabby, watery, anemic fat, for when fat is once formed it must be kept well nourished with oil to be healthy.

**The Lymphatic and Bilious Temperament; Those With  
Flabby Fat.**

The lymphatic and bilious temperament we shall describe as conditions which often exist together, and



for this reason under one head, the underlying cause being the same. The characteristic difference between the two, as described by our ancient authorities, being in the complexion and color of the hair and skin. This form of temperament or constitution presents conditions which vary in relation to health and disease, in just accordance with the graduation of the assimilation of fat foods. The more fat foods assimilated the greater is the proportion of health and the greater the immunity and the less susceptible is the individual to disease. According to Hutchinson, the lymphatic, bilious, and nervous constitutions or temperaments, are dyscrasias or diatheses, according to their permanence. In Hippocrates's description of the phlegmatic temperament, he attributed the condition as due to the production of a super-abundance of phlegm or lymph, or watery particles; and the bilious or choleric to the surplus of yellow bile. There is much probity in Hippocrates's description, inasmuch as these conditions are the conditions of flabby fat.

The anemic form of flabby fat is what I shall describe as the cause of the lymphatic and bilious temperaments, and when these cases are treated with the subcutaneous injections of oil, they may be converted into the sanguine, or the temperament and constitution of the acme of full, healthy life. We frequently observe this condition in both men and women, and whether the complexion be dark or fair, there is very often that varying yellow or bronze hue to the skin which comes from a mal-nourished liver. The reason for this is that flabby fat is a vampire which saps the body of its nutrition, because, such fat is not rich in oil, but watery; thus the name lymphatic constitution or temperament. If this fat were



rich in oil it would be a treasure house from which vitality could be drawn. This caste of people can easily be placed in the highest condition of health. In young, delicate girls of this constitution the menses often are scanty and irregular, and their faces pale, though the amount of flabby, watery fat may be large. In older women we often find the condition due to prolonged lactation, where sufficient fats have not been eaten to supply those taken away. In either men or women the condition may have been caused from prolonged sickness which has depleted a good constitution of its stored fuel. Fats and oils not having been fed to these patients at the time, or for a long time after, the power of assimilating them was comparatively lost, or not having an appetite for fats and oils, they were not eaten. In either case the adipose would have given up largely of its stored treasure of oil and become watery, flabby and bankrupt. Experiments upon hogs show that when fats are withdrawn from their diet, that while their fat tissue may shrink away, their connective tissue of this adipose remains as an atrophied fat. The same condition is often found in man after prolonged sickness, and in the aged about the kidneys.

The consequence of flabby, anemic, bankrupt fat tissue are many and are directly opposite to the conditions of perfect health, produced by a healthy, rich, oily fat tissue, for in healthy, rich adipose there is never associated anemia. The two conditions are incompatible. As each fat globule has its blood vessels, in the watery fat there is nothing for the blood to draw from, but contrary to this, the watery fat saps the blood of nutrition and vitality and thus anemia is produced; on the other hand, rich, oily fat feeds



the blood. It is a well known physiological fact that large quantities of red blood corpuscles are made from the marrow of bones and that fats and oils are generally looked upon as the most valuable in the treatment of pernicious anemia. In this constitution or condition, either natural or acquired, the liver then often suffers from mal-nutrition, the skin becoming more or less bronzed or jaundiced and pale and various liver diseases may result. The circulation is often poor, frequently there is palpitation, the patient is cold, because he does not produce enough heat and his variation in temperature is greater. Catarrhal diseases easily develop of all mucous membranes and organs. The muscles are weak, inelastic and flabby. Because of the want of energy, there is general weakness and ease of exhaustion. The mental powers are lower and they require more sleep than they would under conditions of health. Included in this same type of constitutions are many who are not fat, in the sense of the word, neither are they thin. The characteristics of this constitution are so plain, however, as to their anemic, lymphatic condition, that they will readily be recognized.

People of this temperament or constitution should be treated with subcutaneous injections of oil and their anemic and flabby conditions of tissue thus overcome. They are as a rule quick to respond to treatment and to convert from their unhealthy constitutions to that which we have described as the acme of abundant healthy life force temperament or constitution.

#### **The Nervous Temperament or Those of the Mal-Nourished Constitution.**

The nervous temperament or constitution is char-



acterized by *delicacy* and mal-nutrition. The person is anemic, the lips often pale, the ears contracted and of a bluish or bloodless color, like those of an old person whose assimilation is bad. The skin is often contracted and hard and frequently we have a nervous, melancholic disposition. They are easily tired and before the day is over, if they have worked hard, they become irritable and through exhaustion often "have the blues." Their appetites are usually poor and delicate and they have an especial dislike for or do not eat fats. As they have never eaten a sufficiency of fats to give them a good constitution, their assimilation of them is deficient. Those of this constitution are not called sick, but *delicate*; but they only half live—they run on one cylinder instead of six. They are deficient in heat production, life force and vitality, and as a consequence, all vital functions are low. Some form the habit of assimilating oils from the intestine easier than others, depending upon their condition of comparative non-assimilation.

Those of this temperament should be treated with subcutaneous injections of oil and built up to the highest point of abundant health, which we have described.

### Diathesis.

Having given the signs by which the four constitutions of men may be recognized, we shall now take up the underlying predisposition to disease, or diathesis, to which those not of the abundant, healthy life temperament or constitutions are particularly liable. Hutchinson has defined diathesis to be any bodily condition, however induced, in virtue of which the individual is, through a long period, or usually through



the whole of life, prone to suffer from some peculiar type of disease.

Those of the lymphatic and bilious temperament possess a low resistance to disease and a diathesis or liability to all diseases of the liver, kidneys and heart, more so than any other class. If this "lymphatic habitus" has existed from childhood, we frequently find a hyperplasia of the lymphatic system which may be shown, as scrofula, strumous running from the ear, rachitis, congenital syphilis, etc. In the more complete "constitutio lymphatica" the entire lymphatic system is in a state of hyperplasia and is particularly noticeable in the glands of the neck, tonsils, and thymus gland or latter goitre. Such constitutions are susceptible and liable to many diseases. It has been pointed out by Harvey, of Vienna, and Professor Paltauf, that persons of the "constitutio lymphatica" do not react well from disease, nor physical or psychical shock, and that they frequently die, where the clinical symptoms and pathological findings would not indicate a disease severe enough to cause death in a healthy constitution.

Those of the nervous or delicate constitution or temperament are perhaps more liable to pulmonary tuberculosis than the lymphatic, and as a rule are harder to cure, though the disease is common to both. The lymphatic are, however, more subject to tuberculosis of other parts of the body. Eczema, acne, lupus, and other skin diseases are often and sometimes entirely caused by lowered nutrition. Catarrhal diseases, because of the lack of sufficient heat, made from fats and oils, are common to all the lower forms of temperament and may be of any mucous membrane. This catarrhal condition leads to what is known as



the lithemic diathesis, with the formation of stone or gravel in the kidneys or liver, etc. The rheumatic diathesis is also a product of this same underlying lack of fats and oxidation with its characteristic constitution, and thus we have lumbago, painful neuralgias, neuritis, etc. Catarrhal appendicitis is of the same origin and may be permanently cured by building up the lowered constitution with subcutaneous injections of oil, to that of health in its highest form. The same underlying mal-nourished conditions with deficient oxidation leads to hardening of the arteries and old age. Senile degeneration takes place quickly in impoverished conditions and constitutions. Even though the person be not old, they often become seriously enfeebled from their weakened underlying constitution. Cancer is more common in the lower types of temperaments.

### **Cachexia.**

Where the nutrition of the body has been perverted or used in nature's endeavor to overcome disease for a period of time sufficient to exhaust the body of its fat or fuel and energy-giving properties, and this impoverishment of the system has become apparent, then it is known as cachexia. Thus we have the cachexia of perverted nutrition, as in those cases of long continued earth-eating, a habit sometimes formed among children, and some people in portions of the South, South America and in North Queensland, where it is known as the negroid cachexia. Then we may have cachexia from chronic Bright's disease, diabetes, malaria, impoverished nutrition, hook worm disease, scrofula, pernicious anemia, diseases of the



liver and bones, effects of drugs, long continued sickness, cancer, etc.

Because of the great nutritive influence which subcutaneous injections of oil have upon the system, I believe that with the injections of oil, and thus overcoming the cachexia by building the body up to its highest acme of health, we can prevent the return of cancer. There have from time to time been reported on good authority cases where cancer has disappeared to remain away, without the use of any drug whatsoever. Now, if there are powers of the body which will cure cancer in rare cases, then it is reasonable to expect that these powers would certainly be increased by building up nutrition and cell activity with oil injections, building the patient up to the highest pinnacle of abundant life force temperament and constitution. Injections of oil should, therefore, be used after all operations for cancer.

### **The Source of Healthy Constitutions or Temperaments.**

The source of healthy constitutions or temperaments, vigor, vitality and energy in its greatest abundance, comes from the metabolism of fats and oils. Fats supply about two and one-half times more force and heat than any other substance used as food. The activity of cells is brought about by destructive metabolism in the nature of oxidation. To furnish the products of oxidation these cells must be well nourished, for if they do not have the products of oxidation or fuel they (outraged nature) cannot give that which they do not possess. There must be a proper form of nutrition to replace that which is used up in energy and destruction, or anabolism exceeds katabol-



ism and repair and thus lack of vitality and constitution results. Studies in biology show that cells cannot live without food. Fatty substance is widely distributed throughout the body in some forms of epithelial cells (goblet cells), in the alimentary canal, the liver, the brain, chyle and blood; and, exists as adipose tissue in nearly all parts of the body. It is nature's antiseptic and equalizer, as I have tried to show in a previous article. The amount of fat which the body contains and its richness varies, according to the amount eaten and assimilated, and it is this which makes the many variations in constitutions or temperaments. Impoverished tissues result from the want of fat, and from this same want the epithelial cells above mentioned may contain mucigen or mucin. The blood varies as to the amount of fat which it contains, according to the amount eaten and assimilated. Sometimes the plasma contains so much fat as to be milky.

Oxygen (72.0), carbon (13.05), and hydrogen (9.01), make up 94.06 per cent. of the entire body. Oxygen may come largely from the air; oxygen, carbon and hydrogen may all come from oil, the formula for olein of human fat being  $C_{57}H_{104}O_6$ . Milk, the natural food for infants and young animals, has been described as a thin syrup holding in suspension small globules of oil. It will, therefore, be seen that nature provided us first with a certain amount of fat in our diet.

### **Fats Should Be Increased as We Grow Older.**

As we grow older, become more energetic in mind and muscle, and as the increased surface of our body



requires more fuel to maintain its heat and for increased energy of movement, to be in the highest state of health and to possess the greatest amount of energy, we must assimilate that greatest of all dynamic heat and force-giving food—fat. Some have talked wisely about establishing fat equilibrium. But I maintain that there should be more fat eaten than that which is just required to maintain heat and energy at its lowest. We should have sufficient to run on six cylinders instead of one, and we should possess a plump amount of adipose tissue to be drawn upon in case of need, a reserve tissue or bank account, as it were. Then we possess that abundant healthy life force we have described as the acme of healthy temperament or constitution.

### **Heat and Energy.**

Physiologists tell us that the heat of the body arises from the metabolic changes of tissues, largely through the exchange of oxygen from the atmosphere for carbon and hydrogen from the body. Oil is a hydro-carbon and supplies more than twice as much heat as any other substance used as food, or made from the body from other foods. Ordinary body fat contains about 76 per cent. carbon. The oxidation of fat or oil produces heat and energy. Life force varies with the heat production, which must come from nutrition. The potential energy of food is measured, with few exceptions, by the heats of combustion or calories. Oil is completely oxidized, but other foods form end products which must be eliminated. In the metabolism of energy it has been found that foodstuffs may replace one another in the system, in

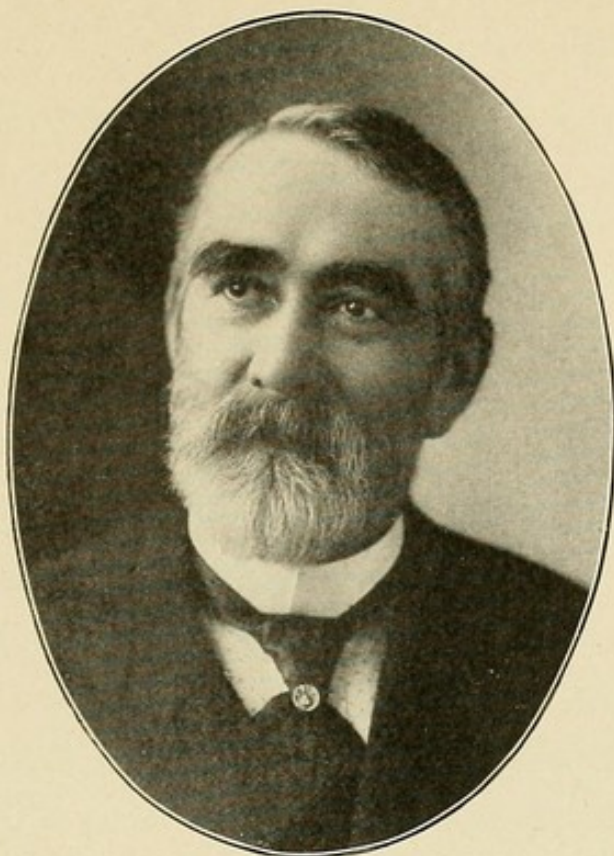


proportion to the amount of their calories or potential energy which can be made from them. The potential energy of the body must necessarily be in proportion to the energy-giving foods and that which is stored in the body and the oxidative powers of the system. Where there is a small amount of proteid food used, the remainder of the food may be fat, which will supply energy, vitality and life. Subcutaneous injections of oil are, therefore, sufficient to build up the body. By nutrition all losses of the body in work, thought, activity of muscle and working of organs are replaced and maintained. Fats and oils are readily taken up for oxidation, while other foods must go through a roundabout process of absorption and cleavage, and a series of transformations of distinct and varying character, before they can be used by the body, and then, in lowered conditions of nutrition, the end products of these foods sometimes cause disease and senility.

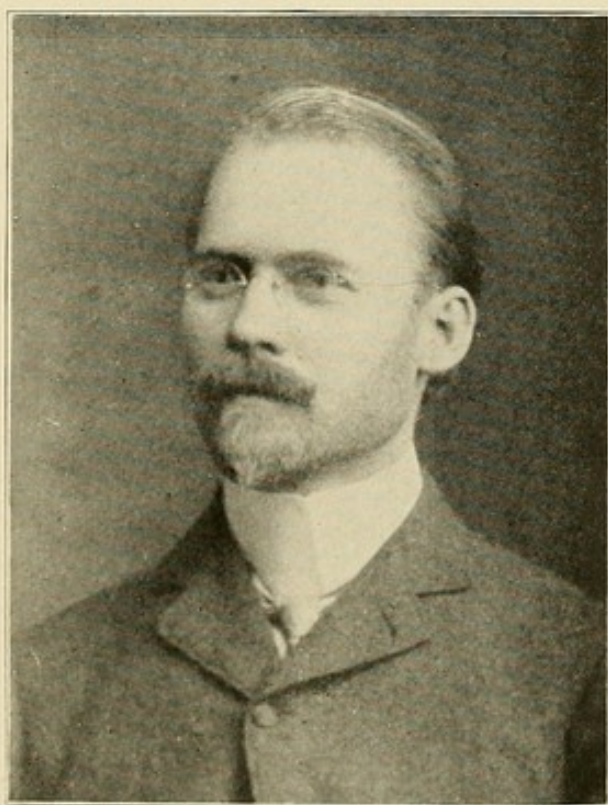
#### **Subcutaneous Injections of Oil Living Energy.**

Oil subcutaneously injected is the only substance used as food which can enter the body in practically the same manner as through the complicated apparatus of digestion and be used for the production of heat, energy, force and life. The radiant energy of the sun's rays is stored in oil; there is a definite absorption spectrum. This potential energy is set free, or is again made kinetic when the oil is used in combustion, and produces heat, energy, force and life. There is, therefore, in oil living energy besides that which is produced by combustion.





**Case VII.** Mr. W. L. G., who gained 100 pounds in weight and recovered entirely from pulmonary tuberculosis. Treatment: Subcutaneous injections of oil. He remains well and has been actively engaged since the second month's treatment. His life was renewed.



**Case XVIII.** Dr. F. K. R., who gained 17 pounds in weight. Treatment: Subcutaneous injections of oil. His life was renewed.







### **Injections of Oil Increase Energy and the Powers of Oxidation.**

The idea that oxidation is brought about largely in the tissues and cells in their metabolic changes is inclined to by most physiologists. Some have advanced the theory that the oxidation and variation of oxidation in different individuals is due to unorganized ferments or enzymes (oxydases) which have a peculiar property of promoting oxidation. This theory has been advanced by some to show the reason why there is a class of people who can assimilate fats better than others and why some are more full of energy and life and as a consequence are healthier and less liable to disease. Since it is largely theoretical, we will not dwell upon this point, but we are certain that by increasing the work of the organs of digestion, we do thereby increase their ferments and powers of digestion. Now, by the injections of oil we increase the amount of substance to be oxidized and by continued training, these oxidative powers are increased as is shown by increased health, change of temperament or constitution, to its highest activity, and by increased lung and chest development.

### **Lung Development.**

The lungs both give and take—they take in oxygen and excrete carbon-dioxid. In proportion to the amount of carbon-dioxid excreted, which comes greatest from fats, they will grow and be healthy. Therefore, lung excretion should never exceed the amount of carbon food (principal of which I mean the fats) in the diet. But exercise should be in just proportion, so that we do not accumulate too much adipose and so that sufficient oxidative and energy-giving powers



be developed; for laziness, inactivity, warm climate, warm flats, etc., are conducive to inactive and lowered oxidative powers.

### Impoverished Constitutions.

Impoverished constitutions or temperaments, malnourished and half-starved tissues, are due more frequently to the non-eating and the non-assimilation of fats than from any other cause.

In this lowered state of constitution we find that anemia or oligemia exists and the mass of living cells from the blood do not carry on the exchange of carbon for oxygen as they do in the abundant, healthy constitution. The reason for this is that they have no carbon to give, because, in this class of people, there is always a deficiency of fats (hydro-carbons) in their diet and because oil requires a greater amount of oxygen for its conversion than other foods.

Fats and oils, when once assimilated, are eliminated almost entirely by the lungs and have no end products, like urea, uric acid, etc., to be excreted by the kidneys. The nitrogen and proteid substances, urea, uric acid, etc., frequently are not thoroughly eliminated in these lowered constitutions because of the poor oxidative powers of such individuals. For this reason a diathesis to rheumatism, lithemia, hardening of the arteries, tissues of the brain, etc., is produced. Therefore, to overcome this impoverished constitution and to increase the oxidative powers of the body we have the call for subcutaneous injections of oil.

The burning of fats and oils by the body being relatively a simple process, the subcutaneous injections of oil start the fires of life to going, as it were,



to eliminate such products as tend toward disease. Not so with other foods, because of the series of transformations which they must undergo. Subcutaneous injections of oil in promoting oxidation, heat, life, energy, stamina, vigor and vitality place the body in the best possible condition to ward off all kinds of diseases and do away with diathesis and cachexia.

### Summary.

In summary, then, of the diseases of constitution or temperament, of mal-nutrition, diathesis and cachexia we may say: That primarily they are due to a lack of fats and oils, which are not sufficient in amount to maintain proper equilibrium of health and oxidation, and as a result there is impoverishment of tissues; and oxidation so deficient that the system is unable to carry off the end products of other foods.

We may, therefore, say that the lineage of health and disease is: that fat and oil is that which gives healthy constitution, with the highest state of immunity from disease, and a vigor and vitality of mind and body which tends toward success in all walks of life. On the other side the lack of fats and oils as nourishment is the parent of unhealthy constitutions or temperaments, the destroyer of health and the forefather of all diathetic predispositions and proclivities to disease. Diathesis and Cachexia are their children. Of the Diathetic family we have the Scrofulous, the Strumous, the Tuberculous, the Rachitic, the Bronchitic, the Choreic, the Nervous, the Hysteric, Multiple Neuritis, Degenerative Diseases of the Spinal Cord, as Locomotor Ataxia, Muscular Atrophies and Dystrophies, Degenerations of the Brain, as the Epileptic and



forms of Paresis. Then we have the Diabetic, the Pernicious Anemic, the Catarrhal, the Malarious, the Hemorrhagic, the Scorbutic, the Lithemic, the Uric Acid, the Rheumatic, the Eclampsic, Bright's Disease, Liver disease and the Exhausted. The children of Cachexia are the Syphilitic, those of Perverted Nutrition, and Drug Addiction, Diabetes, Bright's Disease, Pernicious Anemia, Diseases of the Bones, Cancer, and others.

Again, with the aid of subcutaneous injections of oil we can build healthy constitutions or temperaments. We can convert temperaments of low degree of health, such as we have described as the nervous, lymphatic or bilious, to that which we have called the highest type or acme of abundant healthy life force, or healthy temperament or constitution, full of stamina, vigor and vitality.

Of three hundred and seventy-four cases treated with subcutaneous injections of oil, the average gain in weight was ten pounds per month for the first three months. One patient gained one hundred pounds in weight. Some of the lymphatic or flabby fat we did not wish to make gain in weight, so that the amount of oil injected was regulated to promote health rather than fat. All experienced a renewal of life and health, a stronger physical constitution and temperament. A thirteen year old boy with an acute tuberculosis gained eighteen pounds and grew one and one-half inches taller in six months' treatment and has remained well and free from the disease and now possesses the healthy type of temperament. Time would be well spent in reviewing the cases which I have treated with subcutaneous injections of oil to note the most interesting and wonderful results ob-



tained, but space will not permit. In tuberculosis, as I have pointed out in previous communications, the subcutaneous injections of oil meet every indication for the cure of the disease, an absolute specific. This I have proven in a large number of advanced cases.

Oil is the greatest germicide which the body manufactures in its own laboratory and *is the one* which can be used for the successful treatment of disease.

Life and vitality are dependent upon a sum of forces, principal of which is nutrition and oxidation. Oil is an affinity which when injected unites with the blood and supplies nutrition for oxidation, cell nutrition and cell activity and energy, and consequently builds up nutrition more rapidly than any other means.

Subcutaneous injections of oil require very little energy upon the part of the body to convert the oil so injected into heat, energy, life, and nutrition for tissue repair.

The treatment is not founded on theory, but truth and facts. Theory? Often vanishes. But truth and facts? Demand recognition and acceptance.



## CHAPTER III.

Presented by the author in The Medical Counselor, March, 1909.

### **CURE THAT HIPPOCRATIC FACE OR THAT FLABBY FAT, AND YOU WILL POSSESS THE VIGOR FOR HEALTH AND REVIVE THE FIRES OF LIFE.\***

There are three types of men, made so by the effects of nutrition and its kind.

Thus we have, first, the man with the Hippocratic face; second, the man with the flabby fat; and third, the robust man of stamina and constitution, nerve and energy, to its fullest extent.

These types of men have been described as temperaments or diathesis, and correspond to the Nervous temperament, the Bilious temperament, and the Sanguine temperament. All of these temperaments, I shall try to show you correspond to the kind of nutrition assimilated, fat nutrition, if you please, and are characteristic of the three types of men named. Temperaments or diathesis are therefore relative terms, corresponding to the state of nutrition and the effects which habits of assimilation of nutrition have produced in building the body. These effects are produced by the non-assimilation or the assimilation comparatively or completely of the dynamic power, force and blood-giving foods.

\* Hippocrates classified people under four temperaments or habits of the body, namely, the sanguineous, the phlegmatic, the bilious or choleric, and the melancholic. Dr. Gregory added the nervous temperament. Other writers have proposed a number of other temperaments and various classifications. For the purpose of this paper we mention only the three grand divisions.



The foods most essential for the giving and producing of dynamic power are known as the carbon foods, or heat-producing foods, principal of which are the fats and oils (or hydro-carbons); and it is these or the comparative lack of these which have made the three types of men.

Oil or fat (hydro-carbons) supply two and one-half times more force and heat than any other food. They are excreted when assimilated almost entirely by the lungs; and in this excretion or exchange of carbon for oxygen lies their dynamic power, giving might, energy, force, stamina and vigor to the body in its fullest degree. Fats are also concerned largely in the production of red blood cells, for physiologists tell us that from the marrow of bones are largely made the red blood corpuscles, and these again nourish all other tissues.

Every individual has his own co-efficient of energy and heat production. The amount of carbon excreted varies greatly, according to the amount of carbon foods eaten and assimilated. Thus it has been found that the poor eaters who do not eat a sufficiency of fat have existed on 200 grms. of carbon per day. It is no wonder then that these people, and those who from dislike or want of knowledge of the necessity of carbon foods, should be weak and low in metabolism, thin and possess a nervous temperament and the Hippocratic face.

The Hippocratic face or countenance is that indicative of poor assimilation of fat foods. It was described by Hippocrates in his symptomatology of tuberculosis, 400 B. C., and was so true that it received his name and has been frequently repeated in literature up to the present day. You will find it an accu-



rate guide and a consequence of not eating and not assimilating fats. "A sharp nose, hollow eyes, temples depressed, the ears cold and contracted, the skin above the forehead hard, stretched and dry, all the face of a greenish color or black or livid are mortal signs." Now, I do not wish for you to infer that all who have a partial or comparative non-assimilation of fats, or do not have the habit of eating fats, have all of these marks, but you will notice some of them to some extent in a varying degree, as the contracted ears, like those of the old who have ceased to assimilate well, and those of the young who are poorly nourished.

With some poor people this habit of not eating fats may have been formed from want, while with the rich it may have come from dissipated habits, or from a dislike for fatty foods. Where there is a dislike for fatty foods, the habit of assimilating them is harder to produce, and particularly is this true if they have imitated the manners and habits of their forebears, as to not eating and assimilating fats.

People of the Hippocratic face lack in vitality in accordance with their comparative non-digestion of fats. The less fat they assimilate the less their excretion of heat, and the less is their stamina, vigor and vitality. They take cold easily and do not recover quickly. They are easy subjects to disease and particularly prone to be tubercular. They do not possess that over-abundance of life which was intended for them and which is so essential in these energy straining times. When they grow old all of their arteries are subject to hardening. They do not grow old gracefully, because after the age of fifty assimilation becomes gradually more defective.

People of this class should be treated with sub-



cutaneous injections of oil, to build up rugged health and to improve the health of all of their impoverished organs and tissues. The habit of assimilating fats and oils should be established, which in this class of temperament or diathesis will often require several months. When the habit of assimilating fats and oils is once established their diathesis or temperament is changed to the healthy diathesis or temperament.

We now come to the second class: those of the flabby fat, those whose adipose is made up from the eating of starches and sugars, and not from the eating of fats and oils. These people you will recognize as those of the Bilious temperament. They often have yellow complexions, and because the adipose of this class is of a serous, watery nature, they are sometimes called lymphatic or of a lymphatic temperament. Their adipose is more or less of a drone, according to its lack of richness in oil or the comparative assimilation of fats and oils. When they do not assimilate fats and oils well, their adipose is consequently of a serous or watery nature. They are then anemic and all organs of the body are poorly nourished and defective in nutrition. All of the vital organs and tissues of the body are then easily affected by disease and are weak. This class are particularly subject to and usually have a mal-nourished liver. They are liable to liver diseases, gallstones, diabetes, Bright's disease, catarrhal conditions of the alimentary canal, general weakness and many nervous affections. It is this kind of fat people whose adipose is not made up from the assimilation of fats and oils who are subject to diseases of the respiratory organs, bronchitis, pneumonia and tuberculosis. They do not grow old, as a rule, as fast as those of the Hippocratic face, because



they usually assimilate a little more fat and their habit of excluding fats from their diet is not so complete. When they are affected by old age and hardening of the arteries it is usually only of the larger arteries of the extremities.

In those of the most complete Bilious temperament, or those of the lymphatic flabby fat, their fat or adipose often acts as a vampire, which saps their vitality and nourishment from the blood. This condition and all of those diseases of mal-nutrition due to flabby vampire fat or adipose can best be treated with subcutaneous injections of oil. They are usually quicker to respond to treatment than those of the Hippocratic face or nervous temperament, for the reason that it will not usually take them so long to establish the habit of assimilating fats. With the subcutaneous injections of oil and the establishing of the habit of assimilating oils their adipose can be converted from that of the bilious, flabby, anemic adipose to that of healthy adipose, a treasure house of heat and force from which vitality can be drawn and used by all organs and tissues of the body for the cure of disease, repair, and preservation of health. After a course of this treatment people of this class are converted to the healthy diathesis of the third class.

Of the third class in their early life medical men have little to do for them, except, perhaps, for the diseases and consequences of misfortune and indiscretion, and over-indulgence in other foods than fats, particularly liquors. This obesity of the Sanguine temperament is not to be recommended. One should never become too fat, for fat when once formed needs to be kept well nourished, or the person possessing it



will sink into a Bilious temperament, with greater liability to disease and all the consequences of flabby fat.

The healthy Sanguine temperament is formed from the constant eating of a good supply of fats. We should all have a plump amount of adipose and healthy blood, kept so by the assimilation of fats and a just proportion of exercise. When we are in this condition we possess that wealth of constitution so overflowing with health. Such people live long and grow old gracefully. Their life could, however, probably be prolonged, for after the age of fifty, even with these healthy people, there is a gradual diminishing of carbon excretion (the used power of the body), which goes to show that there is lessened assimilation of the carbon-forming, heat-producing stamina, vigor-giving foods, principal of which are the hydro-carbons or fats.

The life of all could probably be prolonged by training the system to assimilate more carbon foods, particularly fats. Wheat will not grow in wornout soil, and so with man; cells of the body require renewed nourishment and subcutaneous injections of oil will nourish them and renew life.



## CHAPTER IV.

### THE CURE OF CONSUMPTION BY FEEDING THE PATIENT WITH SUBCUTANEOUS INJECTIONS OF OIL.

By the method of treatment which I here describe I believe that consumption can be absolutely cured.

First, however, before entering into the merits of this treatment let us briefly consider the disease.

Tuberculosis is a disease of mal-nutrition, and while the presence of the germ confirms the diagnosis, before the germ can grow it must find a suitable soil; there must exist a pre-tubercular condition. It is estimated that we all breathe in a great many of these germs, but that they cannot grow in a healthy, well-nourished individual. People who have consumption do not eat fats, oils and cream in sufficient quantities. The first requisite in an attempt to cure tuberculosis has been for many years, and particularly of late years, to feed the patient on various oils, and the most successful sanitariums have adopted a process of food forcing, using the fats of meats, butter and cream as the principal foods to be relied upon to effect a cure, each article of diet being selected for its fat-producing and strength-giving properties. To this out-of-door life has been advocated, because such life promotes appetite and is conducive to place the body in condition for the absorption of more fats. I was one of the first to advocate tent colonies for the treatment of tuberculosis, in two articles entitled "Camp and Out-



door Life as an Aid to the Permanent Cure of Tuberculosis," February 21, 1900, and "Some Results of Camp and Outdoor Life in Northern Wisconsin," Congress of Tuberculosis, May 15-16, 1901, and previous to this time I had located an out-of-door camp for the treatment of these invalids in northern Wisconsin.

To maintain nutrition has long been considered the prime requisite of cure, and an increase of weight is an indication that nutrition is overcoming the disease. With increase of weight there comes strength, and the passing away of distressing symptoms, such as the products of the disease, expectoration of mucus, fever and finally cough. Professor Osler has stated that the arrest and cure of the disease is entirely a matter of nutrition and that the whole object of treatment is to fortify the patient's constitution against the inroads of the disease so that the individual cells of the body have the stamina to fight against and destroy the tubercle bacillus. Regarding tuberculosis, Dr. J. H. Elliot, *Canadian Journal of Medicine and Surgery*, March, 1903, says that nutrition is dependent upon the proper assimilation of food, while improvement must be proportionate to the increase in the amount assimilated. All therapeutic measures, says Marfan, should be devoted to the end of nutrition, and the earlier such measures are instituted the greater the prospect of cure. I shall not go further into the fact that the whole cure of tuberculosis up to the present time is dependent upon our ability to nourish the patient, except to say that the methods of Dettweiler, von Leyden and Hoffman, of Germany, depend upon results from nutrition, and to this end they have advocated forced diet, regardless of appetite. If the patient is to recover he must



eat. Out-of-door life is important inasmuch as it supplies to some extent the appetite.

Anorexy is one of the worst symptoms against the cure of tuberculosis. It is impossible to get the average patient to eat enough fats, and a person who eats plenty of fats never has consumption. A person who has consumption is the one who leaves the fat from his meat, eats very little butter, and little of cream and milk. He does not and has not lived upon a proper nourishing diet. When a patient is advanced in the disease he is unable on account of this loss of appetite and nausea to eat sufficient food to maintain nutrition, and therefore gradually declines as the disease advances.

In the *Cosmopolitan* of May, 1904, is an article entitled, "Wonderful Whale Hunting by Steam." The author of this article, Mr. P. T. McGrath, says: "It is noteworthy that whale oil, like cod oil, is a substantial antidote to pulmonary disease. Men with incipient tuberculosis have been employed at these factories, and after laboring for a few weeks over the fumes of the immense oil vats, have thrown off the symptoms of the disease." From this we may conclude that fats are absorbed from the fumes of the vats, and from the handling and slicing of the fatty flesh of the whale, the fats being absorbed through the skin and taken up by the blood in a way similar to its absorption from the intestine.

It is also likely that the fatty fumes have a beneficial effect upon the lungs when these are breathed in, and that in this way they render the bacilli less active, as oils destroy the activity of the germs and finally the germs themselves.

In the above few words I have tried to convey the



importance of nutrition in the cure of this disease, believing that the cure rests entirely upon our ability to so nourish the system and stimulate the cells of the body that they will throw off the disease.

**The Assimilative Power of the White Blood Cells.**

Experiments have been conducted principally by the Italian physicians, and a few others, viz., Gabrelschewski, *Arch. f. Exp. Path.*, 1891, bd. 28, Czerny, *Arch. f. Exp. Path.*, 1893, bd. 31, Liviertato, *Arch. Italiano di Clinica Medica*, n. 3, 1893, Tarchetti e Parodi, *La Clinica Medica Italiana*, n. 10, 1899, Kraminer, *Berl. Klin. Woch.*, n. 6, 1890, Oliva, *Gazzetta degli Ospedali*, 17 giugno, 1900, Tarchetti C., Sull esistenza di un fermento diastase nei corpuscoli bianche, *Gazzetta degli Ospedali*, n. 90, 1900, Sull natura e sul significato della sostanza iodofila dei globuli bianchi, *La Clinica Medica Italiana*, n. 8, 1900, Di una pretesa degenerazione amiloidea sperimentale, *La Clinica Medica Italiana*, n. 7, 1900, Recherche sulla degenerazione amiloidea sperimentale, *La Clinica Medica Italiana*, n. 11, 1902, Porcile V., Sul valore semeiologico della reazione iodofilia nei purulenti, *Gazzetta degli Ospedali*, Milano, n. 102, 1900, which go to show that there is a glycogenic ferment in the cells, which has the power to digest stàrches. These experiments have been carried on principally to discover a cause for the disease diabetes. It has also been shown more or less perfect by some of these same observers that fats when placed in the tissues may be assimilated by the white blood cells. Though these experiments, according to Tarchetti, *Clinica Medica Italiana*, 1900, are not definite, it is clear that the white cells of the blood possess a ferment or property which has the power of digesting fats and stàrches, and without go-



ing into the process biological, chemical, phagocytic, osmotic, etc., which has been gone into by Dr. Spezia in the numbers five and six of the *Gazetta Medica Lombarda*, 1904, for, as Tarchetti, *Gazetta degli Ospedali*, n. 28, 1904, says, "is it possible to follow the rapid course of oil injected into the internal organism and the phenomena positively chemical, of osmosis, of phagocytosis, and of digestion intercellular?"

**Subcutaneous Injections of Oil Produce Great Fat in a Dog.**

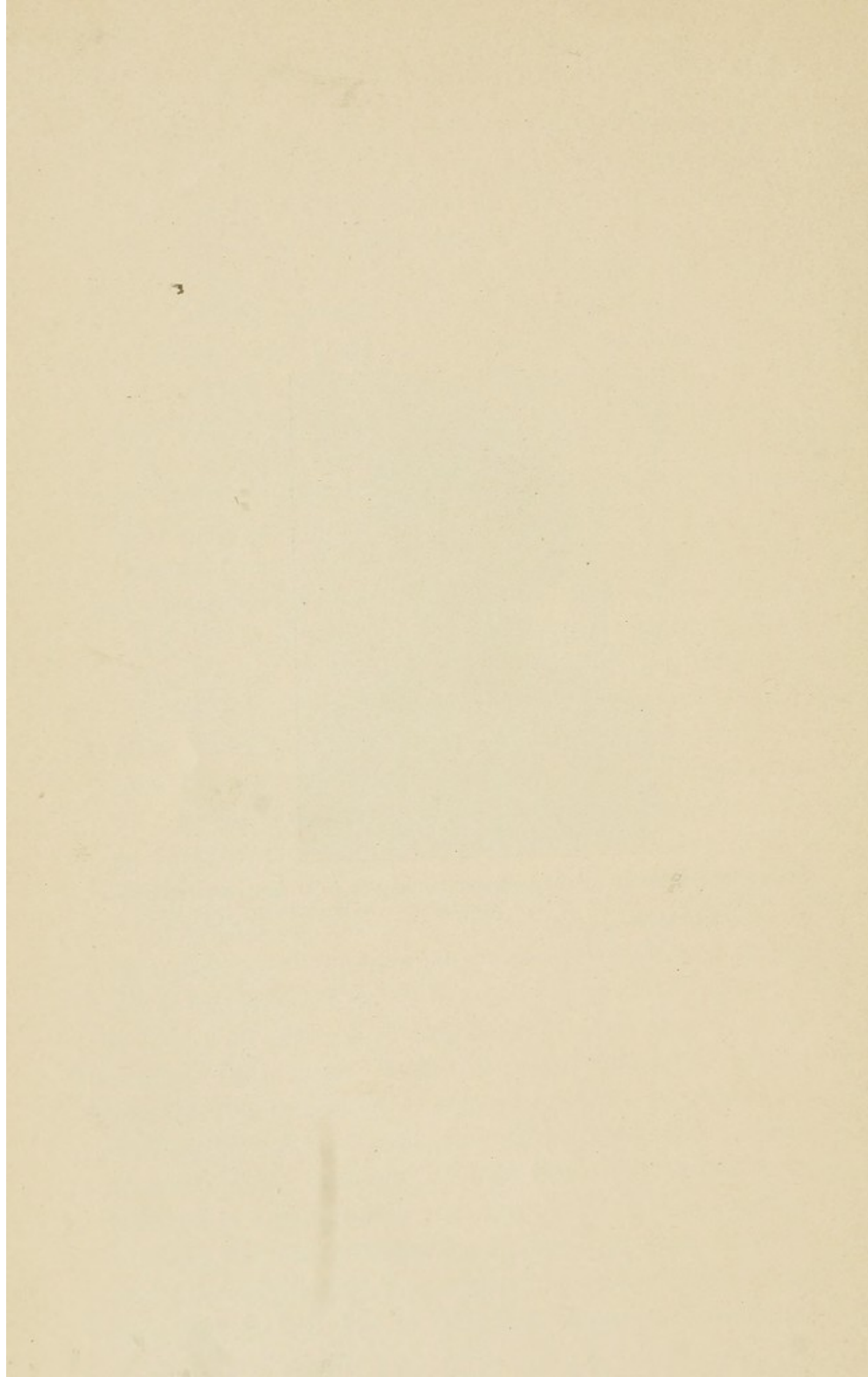
Prof. Leube, *Über die Verwendung von subkutan injectirtem Fett im Stoffwechsel sitzungsb. d. physik. — Medicin. Gesellschaft zu Würzburg*, 1895—in a preliminary communication issued the following experiment regarding the utilization of subcutaneously injected fats, for which I am indebted to the article of Dr. Lafayette B. Mendel, *The Dietetic and Hygienic Gaz.*, 1895: "In treating patients with a weak heart Leube incidentally observed that it was possible to make twenty or more injections of camphorated oil (0.1 0.2 camphor to 1.0 ol. oliv.) per day without calling forth any irritation of the skin or other disturbances. In one almost hopeless case 100 injections of camphorated oil were made per day on three different days with excellent results, and attention was directed to the fact that 80 to 100 grams of oil could thus be injected per day. The question at once arose as to whether such large quantities of fat merely remained beneath the skin or were actually utilized in the nutrition of the body. Leube, therefore, instituted a series of experiments on dogs in which the body fat had been reduced to a minimum, with the object of ascertaining whether fat subcutaneously injected in such animals could be assimilated, *i. e.*, stored up as fat in the body. In order to be able to detect a deposit of subcuta-





**Case XIV.** Mrs. R. F., who gained 18 pounds in weight, recovered from asthma and remains well. Treatment: Subcutaneous injections of oil. Her life was renewed.







neously injected fat in the tissues Leube selected butter for his experiments, since this fat contains in addition to palmitin, sterin and oelin, of which the animal fat is practically composed, glycerides of the lower fatty acids in considerable quantities, so that they can readily be detected chemically and determined in the tissues. In one experiment a dog was fed 250 grams of lean meat daily until the animal remained at constant weight for four weeks and appeared extremely emaciated. An absence of body weight could thus be assumed. In addition to the continued feeding of meat, liquid butter of about body temperature was now injected daily beneath the skin of the limbs." A total of 3,450 grams of butter was injected subcutaneously in amounts varying from 20 c.c. to 100 c.c. daily for a period extending over three months, when the dog was killed. "An examination showed an abundant deposit of fat about the heart and kidneys, as well as subcutaneous layers of adipose tissue in the region of the abdomen and back. The subcutaneous abdominal fat proved to be almost pure butter, the fat in the region of the back was about one-third and the pericardial fat about one-sixth butter fats; the kidneys and mesentery, however, did not differ materially from ordinary dog fat."

"In the second experiment a somewhat different procedure was followed. As before, a dog was brought to constant weight and laparotomy performed. It was thereby observed that fat was not present in the subcutaneous tissue, and that mere traces were to be seen in the mesentery. The wound was closed and healed rapidly. In the following one and one-half months a total of 1,400 grams of fat was injected under the skin of the thigh, meat being fed



as before. The body weight increased during this time from 3,880 kilos to 5,360 kilos. A second laparotomy was performed. The subcutaneous abdominal tissue, as well as the mesentery, was now found abundantly supplied with fat. The wound was closed, and the dog again put on a diet of lean meat alone. The body weight slowly decreased to 3,850 kilos. A *post-mortem* examination now disclosed a complete disappearance of fat from the tissues." \* \* \* "The experiments show conclusively that the butter fats subcutaneously injected were deposited in the tissues and the fats thus injected utilized in the body metabolism."

### **Subcutaneous Injections of Oil Meet All of the Pathological Conditions of the Disease Tuberculosis.**

If, then, the cure of tuberculosis is entirely a matter of nutrition, as has been proven by all clinical experience and from early observation to the present day, and since fats and oils can be utilized by the body when subcutaneously injected to produce force and energy, and since fats are used more largely to repair used-up tissues, and acts when subcutaneously injected similar to the absorbed fats from the intestine, it is reasonable to expect a cure of the disease tuberculosis by the subcutaneous injections of oil.

Upon the assimilation of oils by the blood when subcutaneously injected I base this claim for a cure of tuberculosis. So far I have tried to show, first, that the cure of consumption must necessarily depend upon a proper supply of nutriment, the disease being primarily a disease of mal-nutrition. Second, that consumptives suffer so much from loss of appetite, nausea, and non-absorption, that, as a rule, they are unable to take sufficient amounts of



fats to overcome the disease. Third, that the blood cells are capable of assimilating oils when subcutaneously injected.

So much for theory and experiments. Clinically, consumptive patients do get well by this method of treatment. Not only do the germs disappear from the sputum, but the sputum as well disappears, as do all of the symptoms of the disease, as we shall see further on in the report of cases, and that patients gain in weight up to one hundred pounds.



## CHAPTER V.

### **MAL-NUTRITION AS A MEANS FURNISHING THE SOIL FOR THE DISEASE TUBERCULOSIS—FAT FOODS IN ITS PREVENTION AND CURE, AS POINTED OUT BY THE HISTORY AND LITERATURE OF TUBERCULOSIS OF ALL CEN- TURIES. INTRODUCTION.**

Tuberculosis is and always has been a subject of much scientific discussion because, as indicated by ancient literature, it has been the most prevalent disease of mankind, and while the human race has clamored loud and long against it, it would seem that little effectual good has come in the prevention of the disease. Why? Because while the literature of all centuries has indicated and pointed to the fact that the disease was one primarily of mal-nutrition, and that super-abundant nutrition has proved most valuable in its treatment, these facts have not been so forcibly impressed in a practicable way as they should be; their principles of application have not been thoroughly understood or studied out. Tuberculosis can be prevented by building up the defensive powers of the system with a proper diet; then the germ can not produce the disease. In the "Twentieth Century Practice of Medicine," a modern text-book, the statement is made that the germ will not grow in the healthy individual, even though breathed into the lungs.

The Index Catalogue of the Library of the Surgeon



General's office, U. S. A., Vol. XI, 1890, under the head of "Phthisis," contains seventy-nine pages, giving the titles of works upon this subject, among them being about one thousand five hundred and eighty articles (estimated) in the English language, while in Vol. XIV, of 1893, under the classification of "Tuberculosis," which is a distinct classification from the former, we find fifty-five pages of titles, including about one thousand one hundred essays in the English language on tuberculosis. This is the last classification of the Surgeon General's catalogue, but taking the "Index Medicus" from that date, we find in the English language, by actual count, during the year 1894, under the classification of phthisis, eighty-eight essays, and under tuberculosis eighty-four. In the year 1895, under phthisis, twenty-seven; under tuberculosis, twenty-four; in the year 1896, under phthisis, fifty-six; under tuberculosis, ninety-six; in 1897, under phthisis, one hundred and thirty-eight; under tuberculosis, one hundred and thirty; in 1898, under phthisis, ninety-four; under tuberculosis, one hundred and forty-one; in 1899, under phthisis, one hundred and fifty-eight; under tuberculosis, one hundred and eighty-seven. Thus, up to the year 1900, there appeared in the English language more than three thousand nine hundred articles upon the subject. As the "Index Medicus" is no longer issued, we will turn to the "Medical Review of Reviews," and we find there up to the year 1906, about two thousand two hundred leading articles indexed under the headings of consumption, phthisis, and tuberculosis. Among them are at least nine hundred in the English language. Most of the articles above referred to are contained in the Crerar Library of Chicago, which is the second



largest medical library in the United States. In my endeavors to find all that has been written on the practical treatment and cure of this disease, I have during the past ten years read all of the articles on the subject, both special books and those found in various journals. This article, however, is not to take up the practical drug treatment of tuberculosis, though it would be unjust to that vast army of writers to say that there had not in all these writings been suggested many practical treatments, the knowledge of which in the management of this disease, will at the proper time often prove useful. But if such treatments are not given with the judgment which comes from experience in the treatment of many tubercular cases, such drug treatment will often be harmful rather than beneficial, or without effect, owing to its being improperly carried out, from a lack of understanding of the treatment, or of the disease, and of what can and should be accomplished under varying circumstances. It would necessarily be inferred that in the taking of notes on the practical treatment of this disease from the English literature of all the centuries, that much practical knowledge should be gained, and in another chapter I shall try to classify and arrange the practical drug treatment of the disease, but here it will be my endeavor to unravel the thread upon which the whole woof and superstructure of the literature has been founded, and that is that the disease from earliest antiquity to the present date has always been looked upon by many as one primarily of mal-nutrition, and that super-nutrition has formed the basis and most important point in its cure, and that nutrition in the form of fats and oils.

As journal articles are often special, to prove the



point that mal-nutrition is the first and most important factor, we would gain much by referring to such special articles, but that is not the purpose of this paper, and I shall refer only to the standard text-books on medicine, as these should represent the opinion of the majority of educators on our subject, so that the extracts which I shall make from time to time will be taken either from their chapters on the subject or special text-books on the same.

For much of the early medical writings I am indebted to the labors of the Sydenham Society of London, who have translated the works of Hippocrates, Aretæus, Palus Ageneta, and parts of Galen, Rhases and other ancient authorities.

### **History of Phthisis.**

In commencing the history of phthisis, we shall begin by following the course of events of a subject which is as old as history itself. Even before the disease had a modern name it was written about as a wasting disease, and all subjects of mal-nutrition were thought to be afflicted with this disease. As such, it was described by the ancient physicians of Egypt, Assyria, then by the writings of Moses in Leviticus; but we must pass by what might be said of the manners and customs of these ancient people, when medicine formed part of the priestcraft of early nations; of those semi-fabulous ages in which tradition ran riot; of what might be said of the early practice of medicine among the Jews; of the writings which recent discoveries show that Hippocrates, 400 B. C., learned much of medicine from his predecessors.

Hippocrates, who was skilled in all the arts and sciences of his day, and from whose time medicine



assumed the rank of science, must have been well grounded in the learning of medicine from his accurate description of this and other diseases. The Hippocratic face, or countenance of the tuberculous, from Hippocrates's description, has followed largely through the literature on the subject in the description of the symptomatology of the disease, and is the face and symptoms of those who do not live upon a proper diet. Indeed, I observe this form of countenance among those who do not eat a sufficiency of fats. You will find it an accurate guide. "A sharp nose, hollow eyes, temples depressed, the ears cold and contracted, the skin above forehead hard, stretched and dry, all the face of a greenish color or black or livid, are mortal signs." Hippocrates also mentions cases of consumption which he believes to be due to lack of diet and a hard life. It is interesting to note that the disease was described more particularly as one characterized by gradual loss of weight, and those most frequently subject to this disease, being the smooth, the whitish, the blue-eyed, the red-haired; those with the scapulæ having the appearance of wings, etc. Pus formed and was expelled by coughing. This pus, it was thought, came indirectly from the brain, mucus distilling or falling from the palate and pharynx into the lungs, there producing suppuration and ulcers. Hippocrates believed the disease often followed and led to suppuration of the lungs.

It is thus easy for one to read between the lines that all these symptoms are those of mal-nutrition and the primary cause which has led to lowered vitality and in-nutrition of tissues. We shall now follow this thread, pausing only occasionally to note some distinct advance.



Celsus, 50 A. D., described three forms of the disease. The first due to lack of nutrition; the second cause, which is only a modification of the first, to the effects of chronic disease, poverty, injurious medicines.

Aretæus, 50 A. D., mentioned many of the prominent characteristics of mal-nutrition. Among these we may mention: "The habits most prone to the disease are the slender, those in which the scapulæ protrude like folding doors, or like wings, and those who are pale and have narrow chests." His treatment was mainly dietetic. He recommended sea voyages as benefiting digestion. He says: "After the eating, having rested, the patient is now to be anointed with fat oil."

The prevalence of the disease and its association with thin and under-nourished tissues is shown by the author of this extract. For if one of the common people see a man pale, weak, affected with a cough and emaciated, he truly augurs that it is consumption.

Galen, 140 A. D., recommends his patients to dry climates, Vesuvius being a favored locality, both for its sea air and sulphur. Galen describes the phlegmatic temperament as being attended with a soft and slightly tremid skin. He attributes the disease in their case to a *cocochymy*, that is to say, to *cachexia*.

Pliny speaks of navigation as beneficial to digestion and a popular remedy for *phthisis*.

Avicennas' treatment was directed at nutrition, and consisted in giving large quantities of asses' and goats' milk, and in general was like that of Aretæus.

Haly Abbas prescribed the milk of asses in the morning and at night the syrup of poppies. He also praised goats' milk.



Alsaparavius approved in general of a milk diet.

Rhases, the Arabian, described several varieties of consumption, and in his treatment strongly recommended the milk of asses.

It will be seen that these ancient authorities gave their attention principally to building up nutrition by the use of milk, the most nutritious part of which is the cream and sugar.

The writings on consumption were nearly abandoned by men of note, for the medical historian finds little and nothing new concerning the disease for a period of fourteen hundred years, all accepting the assertions of their eminent predecessors, even though the disease remained incurable.

Early in the seventeenth century, interest was again awakened in the subject through the study of anatomy and observations commenced as to the correct pathology of the disease. It would be interesting to note the steps of many who gained eminence by their devotion to the study of the pathology of this disease, and to observe the hindrances placed in the way of advancement by men who would hear of nothing but their old teachings. Hard it is for unthinking man to change who has accepted unfounded teachings as truths, but the rising sun could not be thrust back with the gates of the morning, though the accurate description of tuberculosis was nearly one hundred years in advance of its recognition and acceptance; even then the eighteenth century closed with ignorance and bigotry, for the vast majority still clung to the ancient views of the Grecian fathers. The principal literature of this period was devoted to the study of the tubercle, which, more modernly, has led to the study of the bacilli, and while this study is valuable



and interesting, we must again take up the thread of mal-nutrition and unravel it from the various early text-books.

In 1809, "The Physician's Vade Mecum," by Robert Hooper, gives much attention to the Hippocratic countenance and habit which we have before described.

B. Rush, 1818, "Medical Inquiries and Observations," says: "I shall begin by remarking, that the pulmonary consumption is induced by predisposing debility."

Wm. Cullen, M. D., 1822, "First Lines of the Practice of Physics," says, page 499: "There must be perseverance in such measures as are calculated to give strength and tone to the system."

George Gregory, M. D., 1829, "Gregory's Practice," page 424, says: "It occurs, for the most part, in that peculiar habit of body (the scrofulous) which is characterized by a delicate organization of blood vessels." Page 434: "The diet of a person who has shown a disposition to phthisis should be nourishing."

J. Coster, 1831, "Physiological Practice" (translated from the French), page 131, says: "But experience has demonstrated that the predisposition, the peculiar irritability of which we speak, is most frequently found among individuals who have the constitution which has been named phthisical, the characteristics of which are the following: Narrow chest, long and small neck, slender limbs, a tall, thin stature, delicate skin, circumscribed redness of the cheeks, the lymphatico-sanguine temperament."

John Armstrong, M. D., 1837, "Armstrong's Practice of Medicine," in his discourse on consumption, says that "tubercles are found in the lungs of the lowest classes, because the diet is too spare, because they breathe bad air, and because the clothing is de-



ficient; in the higher ranks because the diet is complicated, because the clothing is deficient, and because the habits, even of the children of this class, are dissipated."

Robby Dunglison, 1842, "The Practice of Medicine," among the causes of tuberculosis, says: "Faulty alimentation is, doubtless, also one of the important extrinsic causes of phthisis, and of the tuberculous condition. Exclusive vegetable diet, or a defective supply of animal food, has been regarded specially obnoxious, but much depends upon habit."

Wm A. McDowell, M. D., 1843, "A Demonstration of the Curability of Pulmonary Consumption in All Its Stages," says, page 77, as to causes: "All such matters and things, then, as tend to interrupt nutrition, or to obstruct excretion, are exciting causes to a degenerate condition of the blood, which is the proximate cause of tuberculous disorders."

John Elliotson, M. D., 1844, "The Principles and Practice of Medicine," page 798, regarding causes of consumption, says: "There can be no question but that it is greatly predisposed to by bad food." He gives the Hippocratic description of mal-nutrition above described.

J C. Massie, M. D., 1854, "Southern Practice of Medicine," has little to say about consumption, and nothing as to its cause. He recommends and says: "Cod liver oil and gentian are highly extolled by the English physicians, and I think deservedly "

George B. Wood, M. D., 1858, "A Treatise on the Practice of Medicine," Vol. II, page 87, says: "Nature and causes. Phthisis does not consist merely in the deposition of tubercles in the lungs, and its consequences. There is, besides, a morbid state of sys-



tem which precedes and attends the deposition and upon which it probably depends."

Thomas Watson, M. D., 1858, "Lectures on the Principles and Practice of Physic," page 158, says: "I have lately met with the following curious statement bearing upon this question as it regards the human animal: According to the very trustworthy report of Dr. Schleusner, who was sent by the Danish government a few days since to investigate the sanitary condition of Iceland, no combination of what are commonly accounted the predisposing causes of consumption and scrofula could be more complete than that which exists among the mass of the Icelandic peasantry. Whole families are huddled up with their sheep, not only during the night, but during the greater part of the day, for half the year, in most miserable hovels, destitute of any ventilation but that afforded by the chimney. Their clothing is not once removed or changed during the whole of that time; their food is scanty and the external atmosphere is both cold and damp. The unhealthy condition of the population is evidenced by its extraordinary liability to epidemic disorders, and by its want of increase, or even in some districts, by its absolute diminution. And yet, among this remarkable people, the most uneducated peasantry in Europe, so far as regards what is commonly accounted education, scrofula and consumption are unknown. The writer (in the *Westminster Review*) ascribes this immunity to the highly oleaginous nature of their diet, which consists in great part of the oily bodies of piscivorous birds."

Wm. Aitkin, M. D., 1863, "The Science and Practice of Medicine," page 380, Vol. II, says: "For there can be no doubt that in the tubercular or wast-



ing disease, as well as in those of the diathetic order, there is a latent condition existing before the tubercles are apparent. The relation of the nutritive and other morphological changes between the solids and the fluids of the body has everything to do with the development of the tuberculous state." Page 425, "The indications of general treatment are therefore, first, to improve nutrition, which is the cause of the tuberculosis cachexia, and of the exudations assuming the character of tubercle."

"To fulfill the first of the indications it is of all things important that fatty matter be assimilated in large quantities, and it appears that such are most readily absorbed and assimilated when in the fluid condition." Page 428, "Besides cod liver oil, other fats and oils, where they can be taken and assimilated, are sure to be followed with benefit."

John Mason Good, A. M., M. D., 1864, "The Study of Medicine," page 31, Vol. II, says: "Dr. Wilson Philip has formed another variety of consumption to which he has given the name of dyspeptic phthisis, and which he supposes to be produced by a previously diseased state of the digestive organs, in which the lungs ultimately participate." "In by far the majority of cases in which both the lungs and the digestive organs are affected, the affection of the digestive organs precede that of the lungs."

Virchow, in 1864-65, the eminent pathologist, in his lectures at the Berlin Institute of Pathology, believed that two factors were to be borne in mind in regard to the prevention and the cure of the disease, viz., the avoidance of the predisposition and of all irritation. These points, he said, "Were to be secured first by improvement of nutrition, by cod liver oil,



sojourn in the open air, moderate exercise, care of the skin," etc.

Thomas King Chambers, M. D., 1865, "The Renewal of Life," says: "The tendency of the formation of tubercle resides in the constitution of the individual. That this tendency may be either hereditary or acquired at once. That the circumstances which quickest develop this tendency are the same as contribute to anemia, want of supplies for the formation of tissue, namely: Starvation, bad air, deprivation of light, exposure to cold without power of resistance, fatigue, previous illness; in short, all depressants of the powers of life." After citing a number of cases cured, he says, where there is a lack of appetite it will return by frequent feedings, he continues, "Leave the respiratory organs alone, and direct your thoughts to the organs of nutrition, the stomach and bowels, which will receive with thankfulness and return with interest any care which you may bestow upon them. It is truly by the aid of the digestive viscera alone that consumption can be curable. Medicine addressed to other parts may be indirectly useful sometimes, but they commonly impede the recovery, whereas aid judiciously given in this quarter is always beneficial and usually successful. The chest is the battlefield of past conflict, the stomach the ripening ground for new levies of life." He recommends cod liver oil, and it will be seen that all his efforts were directed at building up nutrition.

Chas. J. Hempel, M. D., 1865, "Homeopathic Theory and Practice," page 794. "An excellent remedy, or rather palliative, in pulmonary consumption is cod liver oil."

Thomas Hawkes Tanner, M. D., F. L. S., 1866, "The



Practice of Medicine," page 108. "Tubercular diseases are not only preceded but are frequently accompanied by a disordered state of the primæ viæ, such as biliousness, acid eructations, flatulence, a general bad appetite, conditions which are so constant that some authors speak of them as strumous dyspepsia." Page 370, Treatment: "When the disease is present, when tubercles have become developed in the lungs, we must endeavor to improve the general nutrition." He recommends cod liver oil by mouth, rectum, and by inunction; also other oils and fats in general.

Dr. Herman Eichhorst, 1866, "Hand Book of Practical Medicine," Vol. IV, page 266: "In factory towns and cities, where the proletariat supports on scanty food its overtaxed life in damp, dark, crowded cellars, it is commonest. Scarcely any disease is so much affected by the influence of constitution." He recommends cod liver oil.

Archibald Billing, M. D., 1868, "First Principles of Medicine," did not believe in the cure of phthisis, though he thought there were many palliatives, and believed the system expelled their tubercles by their softening into a creamy-like condition, and in exceptional cases, if the system were strong, the patient recovered. On page 642 he mentions a case of pleuro-peripneumony; the general symptoms were cough, muco-purulent expectoration, hectic fever, and emaciation. "Abundant nourishment cured the patient in a few months."

Bernhard Baehr, M. D., 1869, "The Science of Therapeutics." According to the principles of homeopathy, page 658, Vol. II: "The formation of these deposits or tubercles depends in most cases upon peculiar conditions of the organism with which we are



almost unacquainted; it is very questionable whether tubercles can ever be formed without some constitutional anomaly. In almost every case tuberculosis can be demonstrated as developing itself under the following circumstances: It may result from a deficient supply or the bad quality of the food in the same manner as has been indicated for scrofulosis."

Dr. Felix von Meineyer, 1872, "A Text-Book of Practical Medicine." "That feeble and ill-nourished persons should be in far greater danger of becoming consumptive than vigorous, well-nourished ones, will not appear extraordinary from this point of view." Daily experience teaches us that a bad state of nutrition is usually accompanied by a feeble power of endurance of noxious influences. "But delicacy and liability to pneumonic and other inflammatory disorders are not the only distinctive marks between feeble, ill-nourished subjects and those who are well-nourished and strong. All the inflammatory derangements of nutrition occurring in the former class give rise to a very profuse formation of young, indeterminate and perishable cells. It is said of such persons, that their flesh does not heal; that is, that a trifling wound is to be followed by severe irritation, and copious suppuration of the wounded part. This peculiarity is partly attributable to an increased irritability which accompanies constitutional weakness, and partially to the fact that badly-nourished or ill-developed organs when inflamed are more prone to the formation of cells of a decrepit and perishable nature, than to the formation of such as are capable of development into new tissues." "Among the influences by which liability to consumption is acquired, or by which a congenital predisposition to it is aggravated, that of an insuffi-



cient or improper diet stands first. Feeding a suckling babe with bread, pap, etc., instead of mother's milk may sow the seeds of the malady. An erroneous regime is often kept up throughout the entire period of childhood. The child is ill-fed (*verfutttert*, as the laity say,) and consequently acquires a feebleness and susceptibility to disease identical with a scrofulous predisposition. The comparatively greater prevalence of consumption among the poor than among the more well-to-do classes is in a great measure dependent upon the wretched diet of the former, which consists chiefly of vegetables." He recommends cod liver oil.

Ziemssen, 1875, "Cyclopædia of the Practice of Medicine," Vol. XX, page 488: "Bad air and improper food generally go together and are the common causes of the high percentage of mortality of consumptives among the poorer classes in large cities." Page 492: "Food of poor quality promotes the occurrence of phthisis, not only by inducing inanition, etc." "The poorness in quality of the food exerts especially an indirect influence upon the production of consumption." Page 609: "When fat is used in an easily digested form, such as cod liver oil, good butter, or milk fresh from the cow, its presence in the affected blood vessels and lymphatics, whose endothelium forms the standing point for the microscopic miliary tubercle, may so improve the nutrition of these parts as in various ways to limit the formation process of the tuberculous inflammation."

Frederick T. Roberts, M. D., B. Sc., M. R. C. P., 1876, "The Theory and Practice of Medicine," page 428: "The mal-nutrition resulting from an imperfect supply of nutriment to the system from any cause has a powerful influence in developing phthisis, es-



pecially in the young. This may be associated with an insufficient amount or improper quality of food, or with want of power of assimilation on account of dyspepsia and various diseases interfering with digestion. Some observers have laid great stress on a deficiency of fat in the system as a cause of phthisis, either from its not being supplied, or because it can not be digested."

J. Milner Fothergill, M. D., 1877, "Handbook of Treatment," page 185, says: "Now we know that recovery from conditions either actually tuberculous, or tending to tubercle, is very common. In nearly half of all cadavers we find traces of the nutritive disorders from which pulmonary conditions proceed." He quotes Meineyer, page 188: "Especially then will tubercle manifest in those who, naturally delicate and predisposed to tubercle, reject all fat. It is well known that fat is wanting in tuberculous tissue; that, in other words, the absence of fat is a great cause of tuberculous degeneration in inflammatory products. Consequently, a rapid cell formation in such individuals is commonly followed by tubercular degeneration. Such is the actual history of much of the tubercular consumption we see around us. Dampness of subsoil may exert much influence, but the unwise yet prevalent custom of permitting children to leave all the fat of their meat on their plates untouched is a much more powerful factor. It is just those slight fragile forms to whose system fat is so absolutely necessary for healthy tissue building, that reject fat most persistently; and where the parents should most steadfastly insist upon their taking fat in some form or other. When once they can be induced to take fat, the dislike to it vanishes, and not rarely becomes transformed



into a positive craving for fat, in which case a cure, or its equivalent, is not rarely achieved. Such is one of the greatest of our curative agents; it is equally potent as a preventive measure."

M. Charteris, M. D., 1878, "Handbook of the Practice of Medicine," page 136: "Phthisis (pulmonary consumption)—The general symptoms are first dyspeptic—want of appetite, a faulty digestion, a marked aversion to all forms of fatty foods."

J. Hilgard Tyndale, M. D., 1878, "The Present Status of the Pathology of Consumption and Tuberculosis," page 1: "Consumption decline must needs exist where there is either too great a waste or a lack of supply."

John Huges Bennett, M. D., F. R. S. E., in "Reynolds' System of Medicine," 1880, page 119, Vol. II: "In the higher classes two causes more especially are found, viz., an hereditary taint, and improper nutrition. On looking at the whole train of causation, it seems to me certain that they may all converge in mal-assimilation or deficiency of food. As far as the strength of the economy and constitution, it matters little whether deficient vitality be caused by the food's being deficient, or if abundant, its not being digested;" page 121, "And here we must remember that all food essentially consists of albuminous, fatty, and mineral constituents, which are reduced in the alimentary canal to a fluid condition by the mechanical triturating action of the teeth, jaws and stomach, as well as by the chemical solvent action of alkaline and acid juices. An observation of the peculiar dyspepsia, which so frequently accompanies tubercular disease, will satisfy the observer that it depends upon excess of acidity in the alimentary canal, which favors the solution of



the albuminous and mineral matters, but is opposed to the emulsionizing of fat." "In youth the indisposition to eat fatty substances is well marked, and among the ill-fed poor it is fat which is the most costly ingredient of food. In either case it is the non-assimilation of the fatty elements of food and their diminution in the blood, while the albuminous elements are comparatively in excess, that gradually interferes with nutrition; the molecular basis of the chyle is impoverished, the elementary molecules so necessary for the formation of healthy blood corpuscles, are diminished, the liquor sanguinis, consequently, is poor in fat, but rich in albumen; the entire growth of the constitution, as a result, is affected, and its powers rendered weak; lastly, when exudations do occur, more especially in the lung, they are of an albuminous character, exhibit slight power of transformation into cells, and only produce that slow abortive nuclear material which is called tubercle. Such is the theory of phthisis we consider most consistent with all recognized facts connected with the origin and progress of the disease, the correctness of which is still further supported by what is now known, first, of the chemical constitution of the food, and the transformations it undergoes in the body; second, of the relations which exist between digestion and the working powers of the individual, and, third, as we shall subsequently see, by what experience has taught us of its successful treatment." Treatment, page 133: "All good food must consist of a proper mixture of albuminous fatty and mineral principles." "The two former holding the third in solution, after being prepared by the digestive fluids, the chyle, out of which the blood is formed. In phthisis, however, the process of chyfication is im-



paired; the fatty constituents of the food are not separated from it, and assimilated, or they are deficient, as very commonly results from a dislike to fatty substances. In either case the blood abounds in the albuminous elements." "To induce health, it is necessary to restore the nutritive elements which are diminished, and this is done directly by adding a pure animal oil to the food. By so doing we restore the balance of nutrition, which has been disturbed; respiration is again active in excreting more carbonic acid gas; the tissues once more attract from the blood the elementary molecules so necessary for their maintenance; the entire economy is renovated, so that, while the histogenetic processes are revived, the histolytic changes in the tubercle itself are also stimulated, and the whole disappears. We have previously seen that food rich in fat will occasionally produce these effects, but then the powers of the stomach and alimentary canal must not have undergone any great diminution. In most cases, however, the patient is unable to tolerate such kind of food, which is not digested." Under these circumstances, he recommends cod liver oil, and further says, "By giving it we save the digestive apparatus, as it were, the trouble of separating fluid fats from the food. By giving the oil directly, a large proportion of it enters the system, unites with albumin, and thereby forms the molecular basis so essential for the chyle. Since the days of Liebig, chemists have generally supposed that albumen forms the basis of the tissues, and is a flesh former, while fat is necessary for respiration, and by its decomposition furnishes heat. An unacquaintance with histology is the cause of this error, fat being demonstrably necessary for the development and support of muscle and of every tis-



sue." "Hence, the universal craving and necessity for fat by the vigorous and working man, whilst a dislike to it is a strong symptom of inherent weakness, and an incapability of assimilating it the chief cause of tubercular disease."

Henry Hartshorne, A. M., M. D., 1881, "Essentials of Practical Medicine," page 34: "Tuberculosis may be pathologically defined as a constitutional tendency to the formation of blood, the plasma of which is defective in organizable capacity; so that in nutrition, instead of healthy tissue, it forms in one, or very often many of the organs, aborted blastema." Page 233: "There has been discovered, as yet, no specific to arrest tuberculosis. But cod liver oil and alcohol, and in lesser potency, iron, quinine, and other tonics, in a certain number of cases, do manifest an important conservative and restorative influence and palliation of symptoms." "My confidence in the frequent value of cod liver oil is based chiefly upon observation. Three individuals in one family, for example, under my care, notwithstanding a well-marked family tendency (shown by the previous death by phthisis of three sisters, their mother and uncle), recovered from incipient consumption under the use of the oil. Other cases, much more commonly, have life prolonged by it. Unfortunately, however, in quite a considerable number of persons, the stomach turns against cod liver oil."

Alonzo Palmer, M. D., 1882, "The Science and Practice of Medicine," Vol. II, page 285: "The causes of consumption may be divided into those which act locally upon the lungs, and those which act generally upon the system at large." Page 290: "Diseases of the stomach and bowels, leading to imperfect nutrition



and general depression, are not unfrequent causes." Page 322: "The leading indications for the treatment of the disease when actually present, are, first, to improve faulty nutrition, considering this in its largest sense, including digestion, excretion, elimination, and purification, as well as building up the tissues. Faulty nutrition is at the foundation of the tuberculous cachexia." He recommends cod liver oil. Among other things, page 326, says: "It not only, when useful, contributes to the production of fat, but it modifies morbid states, and contributes to the production of healthy nutrition. Under its use the physical signs sometimes improve, the progress of the disease is very often retarded, and the symptoms certainly very often improve." Says Dr. Williams, of cod liver oil: "This article, when taken into the system in sufficient quantities and for a sufficient time, acts as a nutrient, not only adding fat to the body, but also promoting the healthy growth of the protoplasm and of the tissue cells, and in some way as an alterative counteracts the morbid tendency to the proliferation of the decaying cells of pus, tubercle, and kindred plastic matters."

I. J. M. Goss, A. M., M. D., "Practice of Medicine," page 132: "An hereditary tendency or predisposition to this disease exists in many constitutions, but it is possible that an acquired debility of the system (which may be developed by various causes) may at times give rise to it." Page 134: "Cod liver oil has long been used, rather routinely, as a kind of specific."

Roberts Bartholow, M. A., M. D., LL. D., "Practice of Medicine," page 428: "As phthisis is pre-eminently a wasting disease, it is highly important to put the organs concerned in nutrition into the highest



state of efficiency. In tubercular and fibroid phthisis, among the earliest symptoms are stomach disorders, poor appetite, especially repugance to the fatty elements of food." Page 429: "The utility of cod liver oil in incipient phthisis is very great."

Angel Money, M. D., London, "Practice of Medicine," page 142: Treatment: "As much fat as possible should be taken by the patient. Malt and cod liver oil may agree, or either may be taken alone."

Wm. Osler, M. D., "The Principles and Practice of Medicine," page 250: "Treatment, general measures. There are three indications; first, to place the patient in surroundings most favorable to a maintenance of a maximum degree of nutrition."

Austin Flint, M. D., LL. D., "Practice of Medicine," seventh edition, page 107: "Impaired nutrition denoted by diminished weight is frequently one of the earliest symptoms. As a rule, reduction in weight continues so long as the disease is progressive; on the other hand, the disease may be considered as non-progressive if the patient be not losing weight, and still more if he be gaining in flesh." Page 111: "Causation: The causes of pulmonary phthisis relate, first, to the specific micro-organism, the bacillus tuberculosis; and second, to the conditions which constitute a tuberculous predisposition or diathesis. The disease is never produced without the parasite, but the efficiency of this agent depends on the predisposition or diathesis." In his treatment with regard to cod liver oil, page 128, he says: "All clinical observers unite in according to it more or less value. Its usefulness in a certain proportion of cases can hardly be doubted. Of the cases of arrested or non-progressive phthisis which I have analyzed, in several the treatment con-



sisted exclusively in the use of cod liver oil and hygienic measures."

Loomis and Thomson, "American System of Practical Medicine," page 836: "The measures directed to the prevention of tuberculosis may be considered under first, those which are concerned with the destruction of the widespread germ; and second, measures directed to maintain the nutrition of the individual at its maximum." Page 840: "As the healing of a tubercular process is largely dependent upon the state of general nutrition, the question of diet becomes of the first importance. Persistent failure properly to digest food is an unfavorable feature in any case."

"Twentieth Century Practice of Medicine," Vol. XX, Lartigau, page 101: "Predisposing conditions—Most certainly any condition which tends to diminish the vitality of an individual necessarily increases his susceptibility to tuberculosis. Clinical evidence sustains this view in a most emphatic manner." Knopf, page 238, of the same text-book, says: "Many a pulmonary consumption has been preceded by digestive disturbances or typical dyspepsia. Bad eaters are nearly always candidates for consumption;" on page 287: "Consumptives, as a rule, have small appetites, and it requires sometimes no little art to make them eat. The one important truth that they should be made to understand is that their digestive powers are far greater than their appetites indicate." "To eat a great deal of butter and cream is especially to be recommended to pulmonary invalids." Page 288: "There is little fear that the patient will ever overdo in regard to the eating of butter. He should be urged to take it with all his meals, fresh or salted, whichever he likes best." Page 291: "While I do not believe in going



to extremes, saying that we can treat pulmonary tuberculosis without any medicinal substances, I think, nevertheless, that we may reduce their number to relatively few. To build up the system, cod liver oil may be given whenever the stomach can support it."

Dr. Hermann Eichhorst, 1901, "A Text-Book of the practice of Medicine," Vol. II, page 471: "Infection with tubercle bacilli will occur the more readily if favored by contributory factors. Among these, in the first place, the conformation of the body constitution is to be included. Experience has shown that generally not thick-set and robust persons are attacked, but rather tall, delicate, pale persons." "It can be understood that the danger of infection is increased by all such conditions as diminish the resisting power of the body, including defective nutrition." Treatment, page 483, recommends first pure air and nutritious diet.

An Epitome of Medicine, Surgery and Obstetrics, by A. Stille, M. D., D. H., LL. D., and R. A. Penrose, M. D., page 127: "Phthisis—Physical Constitution: There is a certain amount of weight to be attached to the fact of slender build, long limbs, long neck, bright eyes, narrow chest, and a general appearance of being loosely knit together." Page 132: "Cod liver oil is a semi-food. It is the drug for consumption. It is a concentrated and digestible food and supplies fuel and spares tissues."

Wm. Pepper, M. D., LL. D., "Text-Book of the Theory of the Practice of Medicine," Vol. II, page 569: "For the development of tubercular inflammation in any part of the body, there are necessary the proper predisposition of the individual." Page 579: "The curative treatment of chronic miliary tuberculosis is embraced in two principal things, climate and



feeding.” The feeding consists in enabling the patient to eat and digest considerable quantities of wholesome food and fats.”

I now wish to refer to one of the best articles ever published upon the subject of tuberculosis. It was written half a century ago, and shows that the writer was master of the disease so far as has been possible with little improvement to the present day, and includes most of the best part and plan of the treatment of tuberculosis, although from this plan many physicians have strayed in their quest of knowledge, following some ignis fatuus into the tangled marsh of this baffling disease, only to return in such instances when common sense and a half century or more of fat and oil feeding have demonstrated its value over all other methods, medicines and manner of treatment of the disease—tuberculosis. True, some good has come thereby in the relief of symptoms, but if we wish to cure our patients, and prevent the disease, it must be by forcing the fats, and to this end everything that will increase fat assimilation is beneficial—to aid in this out-of-door camp life is most useful.

Let us now consider some of the points in the article above referred to, all of which could be reproduced with benefit, and to all of which I agree. The article by David J. Brakenridge, M. D., F. R. C. P., L. R. C. S., Edinb., published in the *Medical Times* so far back as 1868, Vol. 1, page 633, entitled:

**On the Influence of a Digestive Habit in the Production of  
Tuberculosis, and the Indications for Treat-  
ment Drawn Therefrom.**

Among other things he says: “Many authorities are now amongst the number of those who believe that



the immediate cause of tuberculosis is a deficiency in the chyle of those oily matters which, together with albumen, are essential to the formation of a true nutritive blastema. Most physicians if they do not go so far, are at least of the opinion that deficiency of fats is, in some manner or other, at the root of this condition, and that in the means of supplying that deficiency lies the hope of its successful treatment. In the great majority of cases there is a marked dislike of and want of power to digest fats, and every effort is made by tonics and other means to overcome this dislike; too often in vain, or with only partial success." No more true observations of tuberculosis could be made than these. Further, he says: "Without entering into the whole subject of tuberculosis, I shall endeavor under the following heads to explain my views more particularly:

"1. The digestion and non-digestion of different kinds of food may and do become habitual.

"2. The condition of body favoring the development of tuberculosis is a habit of non-digestion of fat.

"3. The causes of this habit are such conditions as diminish the consumption of and consequent demand for fat in the system, *e. g.*, warmth, impure air, want of exercise, etc.

"4. In the treatment of this condition, the indications are to break the habit, and to restore the lost power of digestion of oil.

"5. This will best be done by supplying in increased force what we find to be the chief stimulants to the digestion of fat, *e. g.*, cold, pure air, exercise, etc., and by avoiding all that would tend to confirm the bad habit.

"6. Summer is, therefore, more to be dreaded



than the winter in the tubercular diathesis, and safety to be sought rather in choosing a cool, bracing climate in the former season, than in the opposite and usual course,"

After speaking of the first division, that the digestion and non-digestion of different kinds of food may and do become habitual (1) which, if space permitted, is meritorious enough to be repeated in full, he takes up the second division, that condition of body favoring the development of tuberculosis as a habit of non-digestion of fat.

#### **Pre-Tubercular Condition Caused by a Habit of Non-Ingestion and Non-Assimilation of Fats.**

By this he concludes: "I mean a comparative, not a complete, non-digestion. There is abundant evidence to show that in tuberculosis fat digestion is defective. Almost all writers insist upon the repugnance felt in most cases for fat; and even where this dislike is not present, and considerable quantities are taken, it is usually met with in the stools, showing that it is not digested. There is, therefore, every reason to believe that this diseased condition depends upon a deficiency of oil and consequent relative excess of albumen in the nutritive fluid. Admitting this, the question still remains: How does this disproportion between these substances originate? To this no satisfactory answer has as yet been given. To say that it is due to acidity of the alimentary canal does not indicate where or how the departure from normal condition begins. Acidity is only one of the events in the history of the disease, and may be traced to that general suboxidation which accompanies diminished vitality. Most probably it is met with in all



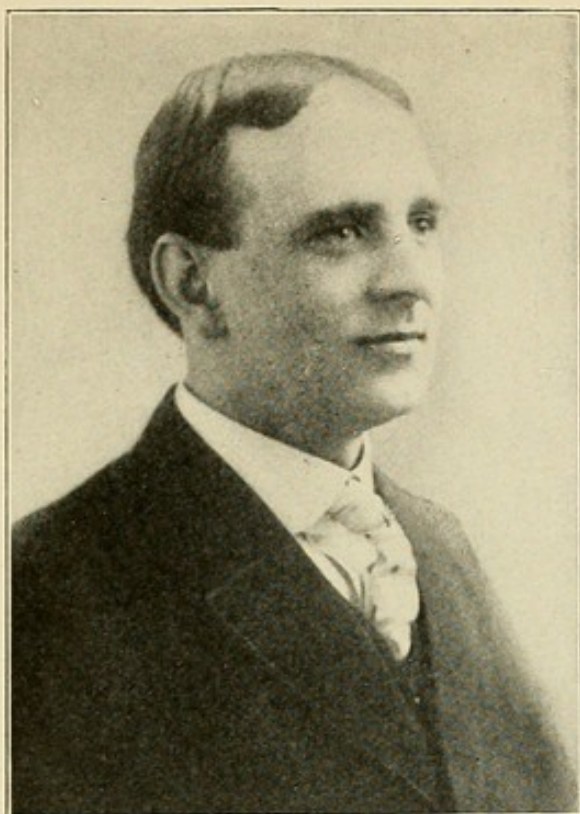
cases of tuberculosis which get to the length of a *post-mortem*; but there is no reason to believe that it is the essential beginning of the tendency of the disease. Preceding the deposit of tubercle, there is a stage in which loss of energy is the most marked feature, and wherein no actual disease of any kind can be traced. But even here the deficient digestion of fat has become established, and only enough being taken into the system to supply the waste tissue. Such being the case, it requires little additional demand to be made upon this small stock of fat to cause actual disease, with deposit of tubercle, to commence. Repeated or prolonged exposure to unusual cold is sufficient, by drawing upon the limited supply of carbon, to disturb the balance between fat and albumen, and thus cause mal-nutrition. The harmony which will be seen to exist between the recognized causes of tuberculosis and the conditions which favor the non-digestion of fats will most of all support this view." It must be remembered that the above was written at about the time experiments were being made to inoculate animals with tuberculosis from the tubercle, the germ at that time not having been discovered. It could now be said that the non-ingestion and non-assimilation of fats have led to the weakened condition and lowered vitality of the body favoring the growth of the germ and consequent formation of the tubercle.

From the foregoing extracts it will be seen that from the earliest times to the present date that the disease, tuberculosis, has been best controlled by building up nutrition, and that this nutrition is best supplied in the form of fats and oils. It may be asked: Why do not all improve when fed upon fats and oils? I would answer by saying, that with those who have



not formed the habit of assimilating oils, that weeks of constant training are often required, and consequently, in these cases, the good results are not obtained that are in those cases who assimilate the oils and fats. Instead of the oils being assimilated with many people, they are broken up into fatty acids and glycerin and expelled, never entering into the system, where they would be used and then expelled in the form of carbon principally from the lungs. A study of the digestion of fats and assimilation of oils shows that they enter the blood practically in the same manner as if they were injected into the tissues and there assimilated into the blood. In May, 1904, I described, under the title of "The Cure of Consumption—Subcutaneous Injections of Oil and Its Digestion by the White Globules of the Blood," my method of treating consumption, and results obtained by this method of treatment since then have been most favorable. The advantage which subcutaneous injections have over alimentation is that they must be assimilated, and by giving one ounce daily by subcutaneous injection, it is common for patients to gain ten pounds a month for several months, until finally all symptoms of the disease disappear. With those who do not gain so rapidly often the symptoms disappear more quickly, and it would seem that the super-nutrition was used almost entirely to heal the diseased lung, instead of being laid up in the form of adipose tissue. The proof and evidence that oils and fats have always been most beneficial in the treatment of consumption is given throughout the literature on the disease from earliest writings and clinical evidence, while the results which I have obtained by injecting oils subcutaneously prove it to be the greatest of all therapeutic agents in the



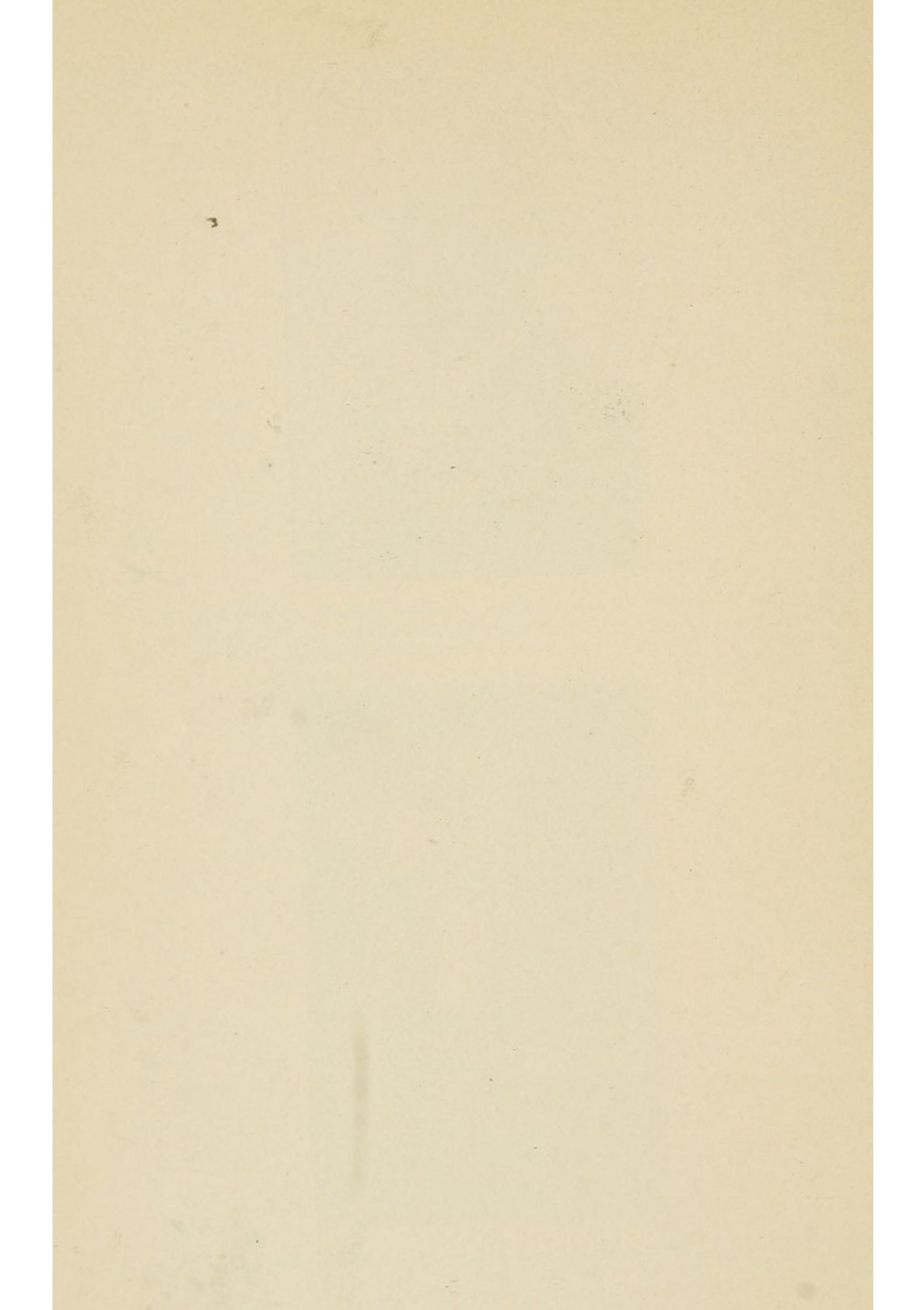


**Case XX.** Mr. A. L. F., who gained 15 pounds in weight, recovered from pulmonary tuberculosis and remains well. He is actively engaged. Treatment: Subcutaneous injections of oil. His life was renewed.



**Case XXII.** Master R. R., who gained 18 pounds in six months. He grew  $1\frac{1}{2}$  inches taller in three months. He had pulmonary tuberculosis, but made a perfect recovery. Treatment: Subcutaneous injections of oil. His life was renewed.







cure of consumption. I shall endeavor, in a series of papers, to show how this treatment meets every indication in the therapeutics of the pathology of consumption, and I shall then show the clinical evidence.



## CHAPTER VI.

### THE CAUSES OF CONSUMPTION INDICATE THE USE OF OILS INJECTED SUBCUTANEOUSLY AS A CURE.

Consumption, as its name implies, is a disease of progressive wasting, the pulmonary variety being characterized, first, by an impoverished system, due to an abhorrence or to the non-use of fats in the daily diet, which gives rise to a variety of pre-tubercular symptoms. The system being weakened and impoverished, the lungs are not able to gather the nutrition from the blood which is their only store for taking material necessary to their life and repair, and the lungs being organs which never rest, but are always active, even though the body sleeps, they require great nutrition for their wear, and the blood is unable to give that which it does not possess in its weakened and impoverished state. The necessary food has either not been eaten or it has not been assimilated, and the unfed, weakened, vitiated lungs are in a condition to furnish the soil for the growth of the tubercle bacilli.

The pre-tubercular state or condition is caused primarily from the non-eating and non-digestion of fatty foods. *If they are not digested, and not assimilated, then subcutaneous injections of oil are indicated.*

Secondly, a pre-tubercular condition is caused by vitiated atmosphere and indoor life, because these conditions are not favorable to the digestion of foods, and as a consequence, anorexia and loss of appetite ensue.



*If the patient can not eat the proper amount of fats and oils to nourish the system, then they should be injected.*

I place the lack of fat foods of first importance in the production of a pre-tubercular condition, for the reason that the second cause produces those conditions which are of the first cause, and from the fact that by observations of man, of various climes and under various conditions, it will be seen that the non-use of a fatty diet leads to tuberculosis.

The North American Indians, in early days, were particularly free from this disease, were strong and well developed. While they are still, in the majority of cases, living an out-of-door life, they are rapidly succumbing to tuberculosis. The reason for this is found not in a lack of out-door life, but in a lack of fatty foods in their daily diet. As a rule, they have neither butter nor cream, because they are too lazy to milk a cow and perform other tasks incidental to making of butter and care of cream; they have little of the fat game which was so plentiful in their former days, and upon which they depended. Farinaceous foods, beans and the like, form the diet of most of their number, and for this reason tuberculosis gains its great foothold among them.

As a similar example, to the want of fatty foods as a primary cause of tuberculosis, may be mentioned the former cannibals of the South Sea Islands, who, some fifty years ago, were noted for their development, feats of physical strength, and endurance. They live much in the open air; their manner of habitation, as to life out-doors, has changed little or none, and certainly not enough to affect them, but their diet has changed. Formerly, they lived upon large amounts



of fat meat, not alone their victims of war, but fat pork, dogs, and other animals formed their staple articles of diet. The potato and farinaceous foods were introduced, and they were educated to them until it became their principal diet, with the result that now tuberculosis is very prevalent among them.

The negroes, in the days of slavery, were supplied with a plenteous amount of hog and hominy, which formed the greater part of their diet. When they were freed and depended upon themselves for support, owing to the prejudice against them, the majority could find only a meager existence, and fat foods did not enter so largely into their daily home diet. All can not be Pullman porters or waiters. His home no longer contains the plentiful supply of hog, and, as a result, we find that tuberculosis is very prevalent among the negro race, while formerly the negroes were practically free from it.

The Eskimos are the only people said to be free from tuberculosis. It has been the belief of some writers that this is due to the cold, stimulating atmosphere in which they live, but this can not be the only reason, for the population living in similar climates are very much affected with consumption, and their children suffer greatly from enlarged tubercular glands. The solution is found in the fact that the Eskimo lives almost entirely upon fatty meats and "toodnoo," a kind of butter made from the fat of the reindeer; on the other hand, the population in similar climates do not eat the extra large amount of fat which is essential for the formation of the heat of the body in the cold climate, and for the extra amount of nutrition needed to supply the vital functions, and, as a consequence, they are much weaker, more anemic and thin-



ner, and tuberculosis becomes prevalent among them. It is said that an Eskimo will eat from nine to twelve pounds of fat at one meal. He is not only free from tuberculosis but also from appendicitis and catarrhal diseases of the intestine.

The goat, among animals, is found to be free and quite immune from tuberculosis. The appetite of the goat is proverbial. Range cattle are little subject to the disease, tuberculosis, but range cows are never milked and robbed of most of the fats which their organism produces, and which, when long continued, can not fail to tell upon their constitutions. It is among old, thin cows which have been milked steadily for a period of years, that tuberculosis is general. It is for this reason, I believe, that tuberculosis is seldom or never found among horses, even though housed. They have good appetites and assimilative powers, and are thus enabled to gather and assimilate the oils from the grains and grasses, besides taking on flesh from the more circuitous process of the digestion and assimilation of other foods.

In man, the secondary cause which leads to the production of tuberculosis, is indoor life and sedentary occupations, since these occupations are not conducive to appetite. Sunlight and air stimulate the blood cells so that they perform their functions better and assimilate more food. The appetite of the camper is well known. He can eat any kind of food and relish it, even though the food is cooked by himself or comrades, and of such a mess that he would turn away from it with disgust were he at home. In camp, however, he finds it very good, and praises are not too high for the cook as he passes his plate for a second or third portion.



The causes, then, of consumption are those conditions which lead to faulty nutrition, generally in the habit of diet which has lowered the nutrition of the blood, leaving the lungs no longer able to maintain their vitality and balance between destruction and repair; no longer able to cope with the germ of the disease.

**The Habit of Not Eating Fats Leads to Their Non-Assimilation, Mal-Nutrition, and Tuberculosis.**

Let us question some of our patients as to whether they eat the fat from their meat, a good supply of butter, cream and oils, and what will be the result? This question has been answered before by many physicians. Consumptives do not eat fats. The habit of not eating fats may have commenced from the weaning period of infancy, or may have had its inception from the example set by tuberculous parents. We shall now see how this habit of not eating fats leads to their non-assimilation, mal-nutrition, and tuberculosis.

Webster defines habit as a "state of anything, implying some continuance or permanence; temperament or particular state of body, formed by nature or induced by extraneous circumstances, as a costive or lax habit of body, a sanguine habit. A disposition or condition of the mind or body, a tendency or aptitude for the performance of certain actions, acquired by custom, or a frequent repetition of the same act. Habit is that which is held or retained, the effect of custom or frequent repetition. Hence, we speak of good habits and bad habits. Frequent drinking of spirits leads to a habit of intemperance. We should endeavor to correct evil habits by a change of practice. A great point in the education of children is to prevent the



formation of bad habits." All of the above is said in the dictionary in defining habit, while much more is attributed to habit by those who have written especially upon the subject, considering all physiological actions of the body as originally starting in habit, which by constant repetition has become automatic and constituted a reflex of physiological action.

Habit, then, is the originator of vital action, since all vital action, and every movement of the body or thought of the mind is set into action by some reflex or stimulus, and the metabolic functions of glands are controlled by these reflex centers, which inherited are physiological, and do not require consciousness even for their existence. All this being true of habit, then it has been a means of evolution of the species, though habit, in turn, has been greatly influenced by environment, and later in man by climate, diet, and occupation, as instanced by the various tribes of savages and races modifying their development, physical growth, appearance, and ways of living. People improve or deteriorate from civilization, employment, climate and diet.

It is said that the lowest form of matter has powers of digestion and assimilation. Going higher into plant life, these may be fashioned into habits. Tracing the lowest form of animal life from its beginning, we can see how constant repetitions enforced upon it by its surroundings became habitual, which repetitions have resulted in its structural modification, and the formation of a track for the controlling nervous impulse, nerve tissues being prone to repeat, since constant stimulation renders them more or less automatic. This stimulation, perhaps, changes their molecular structure, and affords a line of least resistance to the



force which causes their movement, and, finally, these actions having become functional and physiological, gives rise to the nerve centers and nerve systems. Constant repetition, then, is habit, which may produce a physiological, or, if injurious, an abnormal reflex, which then becomes functional of the organs or tissues, and may, in the course of time, modify their structural form and utility. Thus, the functions of the body have all been formed by habit. It would, therefore, seem on account of the plasticity of organic materials, that habits implanted from birth, as, for instance, abstaining from fats, would lead to a condition not favorable to their digestion; especially is this true of fats, on account of the manner in which they are digested. Senn, in his book on the Arctic regions, says that the Eskimos have formed the habit of digesting fats to the exclusion of vegetables and that they do not seem to have any desire for vegetables and probably can not digest them.

Fats are digested in the intestine, where they are split into oils by the pancreatic juice and bile, after which their digestion is not agreed upon by all physiologists, which shows that it is not exactly understood, some believing that the fats are saponified, others that they are not; then they pass through the walls of the villi of the intestine, if conditions are favorable. In the walls of the villi of the intestine, after a hearty meal and under normal conditions, there are many white blood cells, which seem to be in waiting to absorb these fats like animals waiting to be fed. If there never were any fats to be digested and absorbed from the intestine then the juices which are used to break up the fats would become lessened, as all digestive juices do when not called upon, as is instanced in the



“faddists” who go without breakfasts, and soon they have no demand or appetite for them. The digestive juices will not flow out in anticipation of an unexpected unhabitual meal, and so it is unlikely that the blood cells will line up to absorb fats in the walls of the villi when there never has been any there for them to feed upon. Organs and tissues grow to the mode in which they are trained. If they are seldom called upon to digest fats they will not respond when fats are eaten only occasionally, the function becoming useless, like the blind, wingless grasshoppers, with extremely long antennæ and the blind, colorless cray fish, of Mammoth Cave; opinions being that not having use for eyes they became rudimentary and other parts of the body adapted themselves to circumstances. Man’s system soon adapts itself to poisons, as tobacco, and when the habit is once formed the condition is hard to overcome.

People who do not eat hearty meals on account of lack of appetite, will soon become of “full habit,” when they are trained to eat regular and large meals, as is instanced with the tubercular patient who, troubled with anorexia and loss of appetite, when placed upon a forced diet and made to eat a given amount, will under these conditions experience a return of appetite in a very short time. Signs drawn from the habit of not eating fats are everywhere pointing to the conditions which produce tuberculosis, prominent among them, written in very strong characters, is the starvation and mal-nutrition of tissues.

The following inferences may be drawn in regard to habit as here described: That the non-eating of fats leads to their non-digestion, mal-nutrition, and tuberculosis. *To re-establish the habit of assimilating fats and oils a plentiful supply of them should be eaten and*



*that since in the thin anemic pre-tubercular or tubercular patients fats may not be assimilated in sufficient amounts to meet the imperative quick demands of nutrition, oils should be injected subcutaneously.*



## CHAPTER VII.

### **BIOLOGY INDICATES THE USE OF OIL INJECTED SUBCUTANEOUSLY AS A CURE FOR CONSUMPTION.**

In this chapter I shall explain to you that the science of life, or biology, points out the use of oils injected subcutaneously as an absolute cure for consumption.

It has been said of the evolution of living matter, that it is born, grows, and dies. This is true of all living matter, whether it be animal or vegetable, man or the tubercle bacilli. There are many conditions which will advance living matter more rapidly toward death which is as certain as others; on the opposite hand, there are many conditions which will prolong the life of living matter. Living matter, in all its varied forms, is characterized by its power of assimilating such nutritive material as is essential for the maintenance of its vitality, and when this power ceases, it dies, whether it be man or the minute tubercle bacillus.

It is proven, conclusively, that before the tubercle bacillus can grow, it must first find a suitable individual who possesses the soil, that weakened non-resistance of tissue which comes from mal-nutrition; for if it were not so, all would have succumbed to this disease. If the weakened cells of the blood, which carry nutrition throughout the system, had been supplied with the material which was so essential to the organs and all the



body to be in a healthy condition, so as to resist disease and repair itself, then tuberculosis never could have affected the body. By a proper nutritious diet we build up the body, so that there is no soil for the growth of the tubercle germ. On the other hand, the weakened individual has succumbed to the disease. *If the nutrition of the blood is supplied by injecting oil into the tissues, which increases the number and activity of blood cells, as well as supplying the material for the formation of fat tissue (as well as connective tissue), and which yields itself to supply all other tissues, then the system of the individual is again placed in a condition to ward off the disease, and through its increased cell activity and increased reparative power, prevents the growth of a new generation of the tubercle germ, while the older ones die and are thrown off by the system. If they have caused much destruction of lung tissue, its place is filled by connective tissues aided from the fat of the blood. There are no impoverished conditions from which the germ maintains its vitality, for conditions which produce vitality of the individual are incompatible with and directly opposite to the conditions which give vitality to the germ. When the nutrition and cell activity of the body is built up to the highest point, it is inevitable that the germ dies naturally through decline of those conditions upon which it feeds, and is as necessary biologically as its growth.*

Life and vitality of the human being are dependent upon a sum of forces, principal of which is the blood. The blood furnishes the nutrition of the body, and is dependent upon proper aeration, and proper nutrition, to carry on the metabolism of the tissues. The blood is composed largely of living cells, which are



its essential workers, and are enabled to perform their functions by the volume of fluid which rides them to the tissues, and for aeration to the lungs. Oxidation, or the repair of the tissue and displacement of old tissue, is one of their functions.

Of all the foods used in oxidation, and the supply of force and heat, fat foods are the most important. *The place of oil, as a remedy for the disease, injected into the tissues, will be readily appreciated, for oil thus injected enters the circulation in practically the same way as when strained through the intestines, as we shall point out more fully in our chapter on the physiology of the cure.*

That which characterizes living matter is its instability, as manifest in its growth, assimilation of other matter, its irritability, motility, and power of reproduction. By the power of assimilation, living bodies or cells of the blood unite with such affinities with which they come in contact.

All these powers are dependent upon nutrition. If the cells of the blood do not come in contact with such nutritious affinities, in sufficient quantities, they can not grow or reproduce themselves as rapidly, and like all living matter, adapt themselves to circumstances, as to number, length of life, and amount of nutrition absorbed. With the oil injected into the system it furnishes an affinity which is assimilated by the blood, furnishing nutriment so necessary for increased growth, reproduction, and length of life, which, in fine, are specialized into the various tissues of the body.

Because of the power of assimilation upon which the vitality of living matter depends, the amount of nutrition which it receives greatly affects its charac-



ter and appearance of its elements, sometimes identical with itself, according to the amount of nutrition upon which it grows.

*Oils injected into the tissues affect the living blood cells directly, by feeding them so that they are enabled to grow, both in size and numbers, and increase their strength and working powers. The presence of nutrition is necessary to feed these blood cells, and for the formation and growth of new tissue.*

The power of attraction and assimilation of the blood cells is the power alone which furnishes and carries on nutrition to other parts of the body, and sustains life, and through this power furnishes the elements of all tissues of the body, and is the characteristic of all living matter.

If nutrition is not furnished by proper foods, then the blood cells can not exist in numbers sufficient to ward off disease. *Injections of oil into the tissues furnish this nutrition, and we know that it is assimilated, while if taken into the intestine it may pass out before being absorbed and be of little or no value. By the injections of oil, the blood cells find for their growth or repair, or for the nourishment of other tissues, that which they readily appropriate.*

Life is dependent upon a constant transformation of matter, which assures to it a proportionate and constant reparation, and it is by this that we can interpret all the processes of growth and repair, while, on the other hand, conditions of disintegration and destruction are due, particularly and principally, to diminution of nutrition.

Nutrition is, therefore, the principal part in the maintenance of life. *Nutrition to the blood is furnished*



*by oil injections, and meets every indication for the reproduction and repair of diseased tissue.*

Through nutrition, living matter is enabled to live, develop, and reproduce itself. When living matter is no longer nourished it dies. If the blood is not nourished it cannot maintain itself, to say nothing of maintaining the strength and resisting powers of other organs. It has little to give, it has less to change and repair, and, in proportion to the function of the organ, will correspond a diminished quantity of functional power. We have said that the body is nourished by the blood, which, in turn, gathers its nutrition from the food we eat. If, for any reason, proper food is not eaten or assimilated, then the blood lacks in nutrition.

The vital organs of man differ so as to constitute, as it were, a number of individuals, and their life, as of the smaller cells of the body, are dependent upon nutrition. This is true of the lungs, as of all protoplasm. There is a constant change of worn-out tissue and, as the lungs never cease working, it is reasonable to expect that they demand the highest amount of nutrition, which they gather only from the blood.

The blood must contain nourishment for the lungs' vitality and repair of their tissues, and for the formation of connective tissue, all of which can be derived from fat tissue. The adipose tissue of the body yields first to supply nutriment to the more vital tissues, *and as oils injected meet all the elements of adipose tissue, their relation to tissues of the body, and how they are converted into them, the assimilation of living tissues, in obedience to an immutable law, will be readily appreciated.*



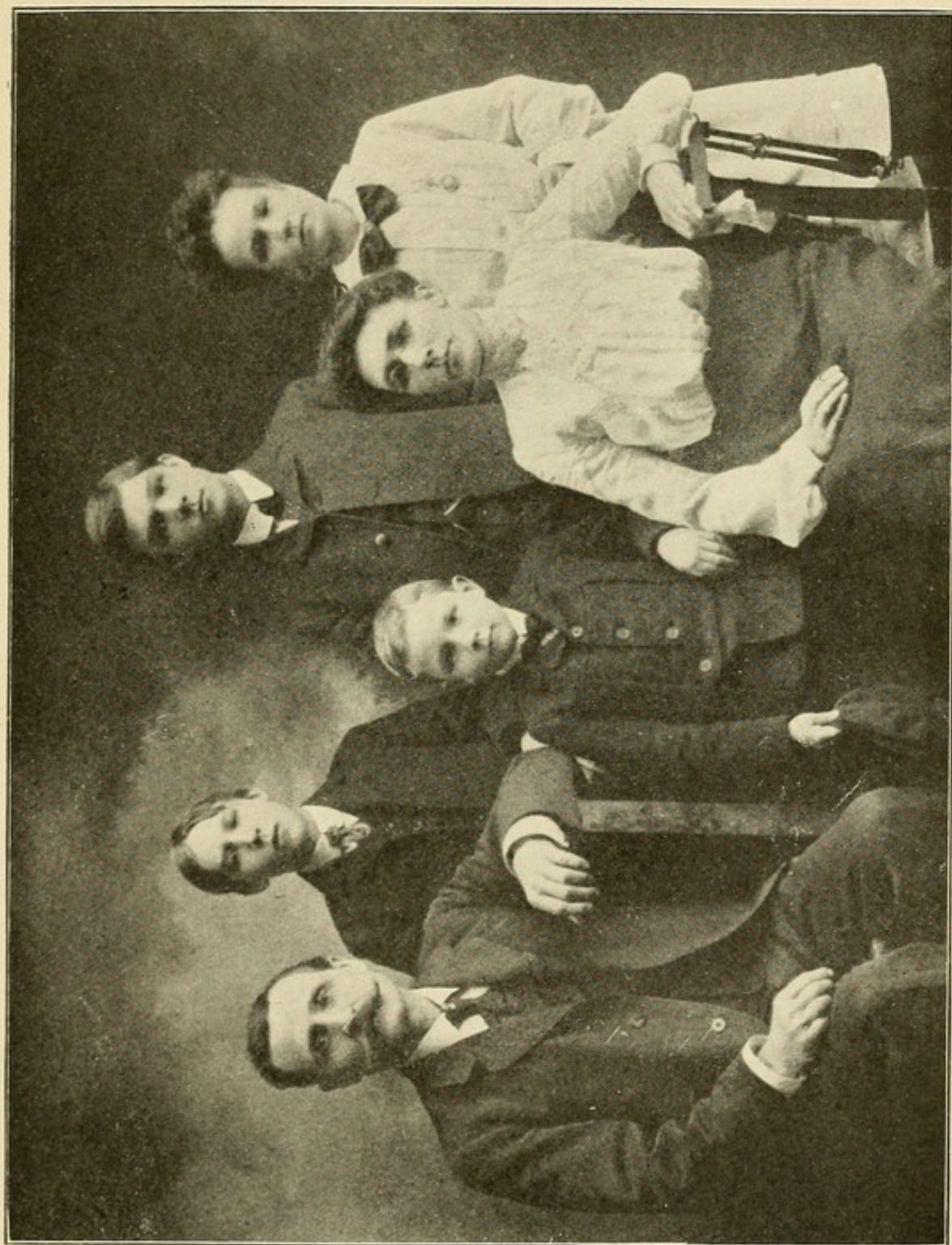
## CHAPTER VIII.

### **PHYSIOLOGICAL THERAPEUTICS INDICATE THE USE OF OILS INJECTED SUBCUTANEOUSLY AS A CURE FOR CONSUMPTION.**

Animal fats and oils of vegetable cells as producers of potential energy and heat are the most powerful of any substance used as food. They also serve to lessen and modify the metabolism, destruction, waste of proteids, and other tissue-forming foods. The assimilation of oil is largely mechanical, being absorbed in a natural or emulsified form. Various views are held as to fat and oil assimilation. Recent works would seem to point to the fact that oil is absorbed by the villi of the small intestine by osmosis through the epithelial cells, a straining, as it were, and then absorbed by the white blood cells which are in waiting to receive the oils, the plasma of the blood varying as to the amount of oil contained from 0.2 to 0.5, or even 1 per cent of fat, and sometimes contains so much of the fatty chyle as to be milky. After the absorption of fats from the intestine they are used in the repair of tissue, and to give energy to the body, or it may be deposited as adipose tissue. If the body is diseased, as with tubercular conditions, we know that more fats are necessary to replace the diseased tissues; on the other hand, where all tissues are healthy, the oil or fat, if absorbed, would be more likely to be deposited as adipose tissue.

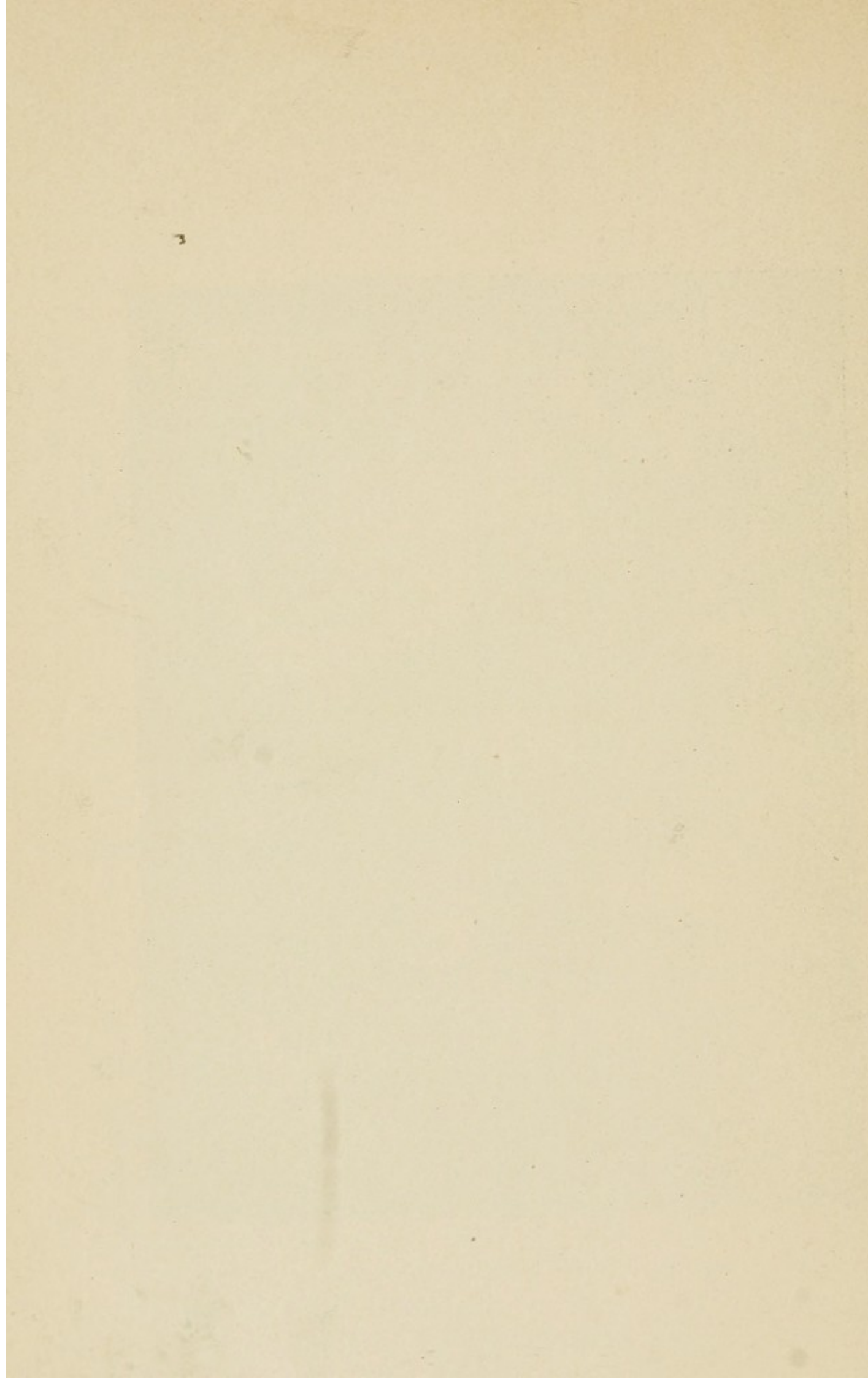
The similarity between the assimilation of oil from





**Case XXI.** Mr. C. L., the father of this family, was cured of an advanced pulmonary tuberculosis. Treatment: Subcutaneous injections of oil. He remains well, is actively engaged in the support of his family, and has, since the treatment, purchased a home. His life was renewed.







the alimentary canal and the assimilation of oils subcutaneously injected, will readily be seen. Instead of the fats being split into oils in the intestine, strained through the villi and taken up by the blood cells, we inject under the skin a fine grade of oil, pure and sterilized, being so pure and free that it needs no straining. Under the skin it is absorbed by the blood cells in their fight for the health of the body, using the nutriment to rebuild tissues. Fat food is either stored up in the body as fat, or burned to furnish heat and energy.

Water, ash or mineral ingredients, fat, and nitrogenous matter constitute mainly the four classes of substance of the body. Water constitutes from forty to sixty per cent of the body, ash from two to five per cent of the weight of the body and occurs principally in the bones. The fat varies greatly with the condition of the person and the habit of diet, but seldom falls below six per cent or rises above thirty per cent. The nitrogenous material or protein includes all of the matter containing nitrogen, and is the element which constitutes about four-fifths of the atmosphere. It would therefore seem that this latter material would be largely absorbed from our breathing and be converted and assimilated by the blood in case of need in the formation of the tissues of the body or in the conversion and transformation of other tissues.

The sources of heat and energy in man are the protein, carbo-hydrate, and fat foods, and the fat and protein of the body, for they, too, are used in place of food in cases of necessity.

Fat, for producing heat and energy, is nearly two and one-half times more valuable than that of carbo-hydrate or protein food.



The primary functions of food are to repair the waste of the body, which may be brought about from action or disease, to promote growth, and to furnish heat and energy.

Experiments show clearly that oils subcutaneously injected may be assimilated by the blood and used to supply nutriment, heat and force to the body. It is upon this that I base my claims for a cure of tuberculosis, and from the fact that the cure of consumption must necessarily depend upon a proper supply of nutriment, the disease being primarily one of mal-nutrition. Again, consumptives suffer so much from loss of appetite, nausea, and, perhaps, non-absorption, that as a rule they are unable to take sufficient amounts of fat, and so nourish the system as to overcome the disease. Then the injections of oil stimulate all growth and cell activity so as to destroy the disease, and as we shall point out in separate chapters, they meet every indication and pathological condition of the body.

*When the body is wasting from disease, fat tissue yields itself first and foremost to supply nutriment for the more vital tissues. For this reason, in a chronic disease like tuberculosis, where most of the fat of the body has been consumed, subcutaneous injections of oil should be instituted to take their place, and to supply the heat, force and tissue-forming material, and to save the waste of other foods which have been eaten, that they may also serve the purpose of nutrition to the highest extent, and overcome the disease.*

### Theories of Immunity.

Let us consider some of the theories of immunity, and later see how digestion of fats and injections of



oil meet these theories, as they do in many particulars.

In all serum therapy in which experiments have been vigorously carried on since Koch, in 1882, published his first article relative to his discovery of the germ, it has been decided that such serums, should such a one be discovered to prevent tuberculosis, will not act so as to destroy the germ directly, but in a secondary way, by stimulating to increased energy the white corpuscles of the blood, or as Buchner puts it, that, perhaps, in the white corpuscles the defensive power of the blood (alexin) originates, while Metschnikoff believes their action due to increasing phagocytosis. How often the blood in a state of health prevents the growth of disease germs in a similar way, no one would be able to compute, but it is known that even germs of the most severe diseases may be found in the secretions without having excited the disease of which they are characteristic, and it is this power which in itself constitutes immunity.

The lateral chain theory of immunity, formed by Ehrlich, in 1897, has been looked upon as a hypothesis of great value in explaining natural and acquired immunity, it being based upon the specific action of toxins, a distinct toxin being formed for each substance eliminated from the body, being a bacteriolytic serum stimulated by the presence of one kind of germ or pathological substance, and being devoid of action upon a different variety. Ehrlich also founded his lateral chain theory upon the mechanism by which the cells are nourished, this cellular protoplasm being very complex, with many combining functions, or "lateral chains," carried on by "receptors" of various forms, and, according to its peculiar form, is able to secure by attachment the substances called "haptophores,"



which it can use, and for which it is said to be particularly adapted. The receptors, formed for the purpose of taking up nutritious haptophores, may also take up poisons and destructive haptophores, as of pathological germs which have gained access into the system. Should this be the case, according to the hypothesis, the pathological germs may stop the nutrition of the cell and bring about its destruction; on the other hand, should the pathological substance not attach itself in a quantity sufficient to destroy the cell, it forms new receptors for taking up nutrition, in that its life may be maintained. Through repeated attacks of pathological substances (pathological haptophores), the cell, in order to maintain itself, grows new receptors greatly in excess, which are finally liberated into the plasma, and are capable of uniting with haptophores, either pathological or nutritious, and, being separated from the cell, form products of immunity, and thus animals become immune from certain poisonous and pathological conditions, because their cells either lack the appropriate receptor or possess an unlimited number of them. This hypothesis is accepted as accounting for natural and acquired immunity, study and observation showing that lowered vitality of the individual lowers the immunity. It is interesting to see that this theory has the mechanism of cellular nutrition as its basis.

#### **Subcutaneous Injections of Oil Produce Immediate Growth of Blood Cells.**

An examination of the blood after an injection shows an increased growth of its cellular constituents, both in number and size. This meets the theory of producing immunity as to phagocytosis; it also can be



applied to the theory of immunity devised by Ehrlich, in that oils either assimilated from the intestine or from subcutaneous injection, enter into the circulation. Now, on account of the increased amount of nutrition in the blood, the cells must develop more receptors to receive the nutrition or haptophores, and, on this account, receptors would be as necessary to grow in excess, and thus be greater in number to combat with pathological germs and to supply cell nutrition.

The peculiarities of the body juices of immunized animals, and the formation in them, or presence, of antitoxin, amboceptors, and other antibodies, depend upon the separation of the unnecessary receptors from the excessively stimulated cells, and experiments with the toxin, antitoxin reaction and the amboceptor reaction indicated that these separated receptors are able to continue their combining functions in fluids containing them. The complimentary body, or solvent of foreign and pathological cells, is not accounted for in Ehrlich's theory, and of this we are left in doubt, but is thought to be a property of the blood rather than of an antitoxin injected.

The opsonic-index raises by improving nutrition and by the subcutaneous injections of oil.

Oil injected is a true antitoxin against tuberculosis, and many other diseases, and the digestion of fats and assimilation of oils shows why some people are naturally immune from many diseases, and particularly of the disease tuberculosis. Clinically, it is proven that when fats and oils can be assimilated by the tubercular patient, that he improves rapidly from the disease; that the people who habitually eat large quantities of fats never have tuberculosis, and if they do occasionally, it is because the fat is not assimilated; and that



subcutaneous injections of oil form the most valuable part of the plan of the treatment of tuberculosis, being perhaps as near a specific for the disease as anything is possible to be.

*Oils injected into the tissues meet every indication of the disease in a direct physiological manner, incompatible with disease, by furnishing substances from which the force and heat of the body are derived, and the material which may be assimilated by its tissues and transformed into their own kind, together with other nutriment, absorbed through the process of digestion. Subcutaneous injections of oil also stimulate cell growth through assimilation, and also serve to lessen the waste of substances used as food, thus nutrition may be built up to the highest extent, and tuberculosis overcome.*

Temperament and diathesis are terms which have been used in connection with the disease tuberculosis, indicative of a dynamic character of the organism relative to the individual variations of nutritive activities, and have been used synonymously to an inherited tendency to mal-nutrition. *We have only to apply this condition as another evidence for the use of oils to be injected subcutaneously as a cure for consumption, for the habit of non-ingestion and non-assimilation of fats may have become established through preceding generations.*

Lung tissue has been placed high in the hierarchy of differentiation of elements necessary for its reproduction, and, as a consequence, lung tissue is often healed and replaced by connective tissue, which, during its formation, is but little differentiated from fat tissue, and, in its growth, enjoys a relative and corresponding dependence to the formation of the latter tis-



sue, which repairs the lungs, and contributes by itself, pure and simply, in the formation of a cicatrix, which takes the place of the unregenerated elements of the lung, and this increases its volume and functional activity, while the elements of connective tissue will change from their common origin and assume the habits and tendency of elasticity, etc., of the lung tissue.

*The formation of connective tissue being similar to the formation of fat tissue in its early stage, by the subcutaneous injections of oil we increase the nutritive properties of the blood, from which this tissue is necessarily derived, and thus cure the diseased tubercular area.*



## CHAPTER IX.

### THE EARLY DIAGNOSIS AND SYMPTOMS OF CONSUMPTION—ARGUMENTS DRAWN THEREFROM FOR THE SUBCUTANEOUS INJECTIONS OF OIL.

The diagnosis of consumption should be based upon its symptoms, and not from tests as to the reaction of the system, for that is sometimes deceivable, while the symptoms plainly point out the course of treatment and ways of living which the patient should adopt. An old tubercular lesion may remain dormant and not cause the patient the least annoyance, or interfere with his health, providing he is living a proper life as to matters of food; indeed, by this means alone, through some change in the life of a tubercular person, as an occupation which has increased his appetite, or through change of diet, the disease has been cured.

While the tuberculin test has been usually advocated only in the early stage of the disease, where the symptoms are obscure, I do not recommend it, for the reason that it very often produces in these cases more than a slight fever, and, in addition, may produce chills and general malaise and aggravation of the symptoms, which, lasting for some days, weakens the patient, takes away his scanty appetite, so that from the test he has often lost in weight and, as a consequence of all the conditions enumerated, has lessened, rather than strengthened, his chance of recovery.

That early diagnosis of consumption is so important has been the excuse of the stanchest advocates of



the tuberculin test, but I take it that the pre-tubercular symptoms, which should cause alarm, are so prominent that they can not fail to be recognized, and if treatment were begun at this time it would be more as a preventive measure. But it is only too often that the consumptive patient does not seek aid in the early stage, or his physician, recognizing the disease, has spared him of the knowledge, sometimes the physician himself being at fault, if he has allowed the disease to advance. Though understanding human nature, we know that some of these patients do not follow the advice in the manner in which they should; again, how many have made a proper study of this disease, and are able to plan a diet disguising the large amounts of butter and fats, so as to be relished by the patient, and which are so essential to the cure of this disease, together with other articles of diet which, by their mechanical action, aid in the digestion of these fats?

In the diagnosis of early tuberculosis we must first consider the following points as aids:

1. The appearance of phosphate in the urine.

*Phosphatic absorption and fat assimilation are closely connected, so much so that when hogs are fed upon a milk diet, in which all fats are eliminated, so far as practicable, phosphaturia develops. The consumptive patient, passing large amounts of phosphates in his urine, is cured of these symptoms by the subcutaneous injections of oil, and it is evident that the assimilation of the oil produces conditions for the greater absorption and assimilation of the phosphatic salts.*

2. Loss of appetite, some indigestion, and a dislike for fatty foods, anorexia, and nausea, with progressive loss of weight, inequality and dilatation of the pupil.



Such symptoms call for outdoor life, forced diet, and subcutaneous injections of oil.

3. Sleep sweats, general relaxation of the system, and a tendency to sweat from slight exertion, with a rise of temperature in the afternoon, then morning expectoration and cough, perhaps pain in the affected lungs, or in the supraorbital region and neck, and sometimes hemorrhage, *are symptoms which call for subcutaneous injections of oil, for by their use we strengthen the patient by building up nutrition, and we furnish material for maintaining the normal heat of the body. Nature, being thus supplied, does not seek to conserve and save her forces and fat tissues from too rapid oxidation, by cooling the body with perspiration at the expense of the vitality and force of the body. On the contrary, the substance for oxidation and cure of diseased tissues is furnished by the oil injected, as well as the substance for furnishing force and vitality to the body.*

4. The period of invasion of the germ is commonly marked by symptoms of a chronic bronchitis, without pulmonary signs.

The symptoms which we have enumerated are premonitory. After deposit of the germs, when these are being thrown off, with consequent symptoms, the diagnosis is easy, but in the treatment of this disease we should not wait for advanced symptoms before beginning the treatment. The symptoms of cough advance with the amount and extent of inflammation of the lung tissue, and the sensitiveness of the throat, and the amount of anemia, blood pressure, and cardiac disturbances. When all of these symptoms have arrived, coupled with loss of weight, it is not necessary to confirm our diagnosis by finding the germ. The



general physical appearance of our patient, together with the symptoms, enable us to base our diagnosis.

Without entering upon the differential signs of this disease, we may mention signs of the diseases which have been said to be often confounded with tuberculosis, and from which differential symptoms should be kept in mind.

Chronic bronchitis, chronic streptococcic, or influenzal pneumonia, and syphilis of the lung, are among the inflammatory diseases of the lung which bear closest resemblance to tuberculosis. *But when symptoms of wasting disease of a chronic type are present, with or without severe pulmonary symptoms, they call for, as the principal part of their treatment, nutrition, and this is best given by subcutaneous injections of oil.* The same as to treatment can be said of these other diseases which may be mentioned as having symptoms similar to those of early tuberculosis, such as pernicious anemia, leukemia and pseudo-leukemia, but which require differential diagnosis; not on account of treatment so much as for the satisfaction of the patient and physician. As the symptoms of tuberculosis advance, all of the premonitory symptoms increase in severity and give rise to certain signs, characteristic of pathological conditions, which varies according to the form of disease and the resistance of the body, depending upon the manner of the patient's living. The morning cough increases on account of the larger amount of inflammatory matter cast off from the lungs. The germ is now usually easy to find.

The symptoms of tuberculosis are now so prominent that they should be used to mark the stage of the disease rather than its diagnosis. The advanced pathological conditions, such as extensive inflamed bronchial



tubes and lung tissue, with its crepitant and various râles, the consolidation and formation of fibrous tissue, with contraction and depression of the chest walls, with lack of cell and bronchial breathing, with various changes in the percussion note; the formation of cavities, with their various resonance, whistling, and râles, are all too evident of their pathological conditions to require description of symptoms here, for the reason that they indicate the stage of the disease, rather than its early diagnosis.

*The thin, emaciated patient, with advanced disease, would never have suffered from the severe symptoms had subcutaneous injections of oil been instituted early in the disease. But there is still hope for those advanced in the disease, for by this method of treatment I have had patients recover from well-formed cavities in the third stage of the disease, and resume their occupation after six months' treatment, when they had previously been unable to work for one or two years, and, as we shall see in our chapter on pathology, subcutaneous injections meet every symptom and indication for the cure of the disease and all its pathological conditions.*



## CHAPTER X.

### **PATHOLOGY OF CONSUMPTION—ARGUMENTS FOR ITS CURE WITH SUBCUTANEOUS INJECTIONS OF OIL.**

Of the many important pathological conditions of the body in the disease, consumption, we shall pass over those which are apparent even to the most casual observer, such as wasting of the tissues of the body, first being an absorption of the fat tissue, leaving only an atrophied adipose, then of the ill-nourished muscular tissue, and changes of the functions of digestion, some of which we have mentioned in previous chapters, and we shall speak but briefly of the changes in the blood, and then take up the pathology of diseased lungs.

The blood, previous to the infection of the lung by tuberculosis, while it may present normal findings under the microscope, will be found lessened in quantity, wanting in activity of the cell functions, and lacking in the normal percentage of nutriment or fat which it should contain, too poor in quality, too inactive from starvation, to prevent the disease and to win against its invasion, and to furnish material and connective tissue to the diseased lung.

*Oils injected into the tissues furnish nutrition for the impoverished blood, promoting at once an increase in all of its constituents, furnishing elements necessary for the formation of connective tissue, and nutrition and force for the cells of the blood to fight and win*



*their battle against consumption; in fine, subcutaneous injections of oil furnish the material and the conditions which are directly antagonistic, opposite and opposed to consumption.*

In the early stages of consumption, before the system has become emaciated, the blood undergoes little or no change, except, perhaps, it lacks in fat; later, there is a loss of watery constituents which makes its examination often appear the same. In the final stage there is an increase of its white cells. In the first stage, the fat tissue of the body yields itself to keep up the normal constituents of the blood, so far as possible, while those who are emaciated and have no fat tissue, and in the second stage, as the disease progresses, there is no adipose tissue to supply the blood with nutriment, and, as a consequence, it diminishes in quantity; and while nature endeavors to force her limited powers into armies of leucocytes with which to destroy the enemy, the disease, she has nothing to feed these defenders upon. The system is completely bankrupt, the adipose has been used, and all nutriment of the body has yielded in its endeavors to supply the blood with nutrition with which to overcome the disease. The patient is emaciated and wasted. He can not digest the food required, and nothing more is to be derived from the body.

*Subcutaneous injections of oil enable, through the body's own complete method, to destroy the disease, and nature's method of destroying diseased germs is the only means which we have for any disease. True, proper care, hygienic rules and indications must be met for all diseases, but the germ and pathological conditions must be met by the system. In the oils in-*



*jected into the tissues we aid the system to every indication drawn from the pathology of the disease which the impoverished system has been unable to supply. Subcutaneous injections of oil into the tissues furnish to the system its supply of fats upon which the blood may draw to feed its armies in their fight against the disease.*

**Connective Tissue Which Heals and Fills Lung Cavities  
Aided from the Fat of the Blood.**

Following the usual description that when an infection of the lungs takes place that the powers of the body, the blood, hurry an increased number of cells, principally leucocytes, to the part; there is also with the cells a connective tissue formed, derived from the nutriment of the blood in the endeavor of the body to heal itself; *it will be seen that subcutaneous injections of oil meet these conditions in a remarkable way, inasmuch as they increase cell growth, particularly of the leucocytes, both in number and size, and this follows almost immediately after an injection. The second condition, that of aiding in the formation of connective tissue, is also met, and as we have shown in an early chapter, fats are consumed for the repair of tissue more than any other food, i. e., they are converted into the various tissues as the old tissues are worn out. They are, according to this, more essential to the healing of the lung tissue, to the replacing of old, worn-out tissue, than any other material.*

If we stop for a moment and consider the development of fat tissue, we shall see its relation to other closely-allied tissues, and particularly to connective tissue, the tissue which fills and heals tubercular lung



cavities. In the early stage of the growth of fat tissue, most fat cells have the same appearance as the ordinary connective tissue cells, and I think that you will bear me out in saying that it is not too far-fetched to believe that the blood, loaded with increased nourishment in the form of an increased cell growth and fats, has a better chance to deposit these over-abundant cells and over-abundant fats in the formation of connective tissue in the diseased lung, thus healing the diseased area, the place where they would be more likely to be deposited, since nature always seeks to cure herself, and since adipose tissue yields to the demands of other tissues in all diseases, the adipose tissue being rapidly exhausted, used in nature's effort to cure; and this she would do and does do, even in cases of tuberculosis in those who are well nourished, and who live well upon fats; but, on the other hand, there are those who are not well nourished and who do not eat fats in sufficient quantities, so that the habit of non-assimilation of fats has so weakened and impoverished the blood that nature can not repair the lung. *By injections of oil we thus aid nature to the material for healing the lung for which she is wanting.*

We are now ready to go on briefly as to the general pathology of a tubercular lung, and from what has been said already regarding subcutaneous nourishment with oil, you will be able to follow their physiological action in the healing of these pathological conditions.

Tuberculosis may manifest itself as a tubercular inflammation of acute or chronic type, the former condition being rare as compared to the latter. It may be of a catarrhal form, affecting only the larger bronchi, sometimes with hyperemia and inflamed lung tissue filling the air cells with resultant products, and un-



der these pathological conditions has been classified as either acute or chronic pulmonary phthisis, according to the severity of the inflammation and length of period of disease.

Again, the disease assumes another form: there is a deposit of the tubercle germ and the formation of the tubercle from which this disease took its name of tuberculosis, long before the discovery of the bacilli, and in this form, too, we find that the tubercle is of various forms and in varying conditions. There is no limit to the number of tubercles; they vary in size, some being so small as to be scarcely seen, others large, and they may be of various shapes, and single or multiple, and may be located in any part of the lung tissue. The tubercle found in so great a variety of conditions, as to size, number and formation, corresponds to the resisting powers of the body, and the amount of reparative material which the body has at its disposal, which comes, largely, from the manner of diet of our patient, and his capability of digestion. In the more chronic forms of the disease, where the body has made good resistance, we often find the tubercle to have undergone complete connective tissue transformation; while in those in whom the disease has advanced more rapidly we find the tubercle undergoing a caseous degeneration, and the rapidity with which these tubercles degenerate and affect surrounding lung tissue, corresponds to the lack of the protective elements (which comes from the nutrition of the blood), and this varies the structure of the tubercle in different individuals, as well as varying the diseased conditions of the surrounding lung tissue, as to inflammatory products, granulation tissue, connective tissue, and tubercle ulceration, and extent of tissue involved.



The histological structure of the tubercle, while not constant, corresponds to its age of development, and the resistance and reparative powers which in the well-nourished individual are ever trying to overcome it, and will be found to be principally composed of cells varying in size, and which have a tendency to undergo necrosis, more rapid in the under-nourished. The cells, which are derived from the blood, are, in general, classified under three heads. We have the small round white cell, the epitheloid fatty cells, and the giant cell. The tendency of the tubercle, in the average case of consumption, is to undergo central necrosis, but where there is a tendency to recover a variable amount of connective tissue is usually formed.

The source of this connective tissue must, necessarily, be from the nutrition of the blood, and upon this greatly depends as to whether the tubercle will undergo connective tissue change, and thus be cured. Cavities of the lung are formed in chronic phthisis by the weakening and dilatation of inflamed bronchi, and by the necrosis of inflamed lung tissue. The tubercle forms cavities from its own necrosis and the necrosis of surrounding inflamed tissue.

Let us now mention, more particularly, the pathology of the lung which comes from nature's efforts to surround the disease and to repair and replace the damaged lung. Tissue changes take place wherever the bacilli grow, which consists principally in cellular increase and the formation of epitheloid and giant cells, held by fibers of connective tissue, or there may be an inflammatory small cell infiltration, or an exudation of serum, fibrin, and red and white blood corpuscles, which change may occur singly or in combination. Sometimes the entire tubercle undergoes con-



nective tissue changes, or if the patient is not so fortunate, his resisting power being good, though somewhat inferior, the formation of a connective tissue capsule offers great resistance to the caseation and breaking down of lung tissues. The resistance built up by the body around a tubercle and around a cavity are similar in construction and formation, and there is a unity of resemblance in the healing processes presented in the various forms of phthisis and tuberculosis which seems to correspond in its completeness to the amount of nutrition in the system. In the weakened under-nourished patient the advances of the disease are more rapid, and the resistance and reparative processes lessen; on the other hand, in the partially well-nourished patient, who is living out of doors and with a good appetite, the resisting powers and reparative forces take place to a greater extent and often overcome the disease.

**Epithelium Cells Loaded With Fat Precede the Disappearance of the Bacilli in Tuberculosis.**

Characteristic of the tubercle and caseous inflammatory diseases of the lungs are the large epithelial cells swollen with fatty substance, and this precedes caseation, during which process the bacilli often disappear. If there is no fat eaten in our diet and the fat tissue of the body has been exhausted of its oil, then no oil can be gathered by these cells, and their contents is more serous and the destruction of bacilli less marked.

From where do these cells and connective tissue come? Various opinions have been held, and where there are so many opinions there is uncertainty, but they can come only from one place, the blood, and if the blood is poor in nutrition, poor in cell activity,



poor in fat and other constituents, then tuberculosis advances rapidly, for nature has not the means at her disposal to overcome the disease; *on the other hand, if we furnish this nutrition through subcutaneous injections of oil (since the patient will rarely eat sufficient fats, and if he does they may not be absorbed until his assimilation is trained), together with a proper diet, we have the material for the cure of the disease, since oil injected subcutaneously increases the growth of all the cellular constituents of the blood and furnishes material for the formation of connective tissue, and for the nutrition of the lung. We can now see how subcutaneous injections of oil meet every pathological condition of tuberculosis in a physiological manner and according to nature's immutable laws. The proof of their value is found in the fact that they cure, and thus proves all that we have said in theory.*



## CHAPTER XI.

### **FAT THE GERM DESTROYER AND EQUALIZER OF THE BODY, WITH ESPECIAL REFERENCE TO OILS AND FATS IN THE PREVENTION AND CURE OF TUBERCULOSIS.**

#### **Fats and Oils as Germ Destroyers and Equalizers.**

In the fat of the body we have one of its own greatest antiseptics, its greatest disease germ destroyer, and a substance which in the body fermentations is an equalizer. The common disease germs will not grow in oil; the substance for their growth and propagation is not present, for in the body they increase at the expense of its nitrogenous parts.

#### **Oil Destroys Yeast Germs.**

The volatile oils such as the oils of cloves, cinnamon, creosote, and of plants, have long been known and used as antiseptics, but the so-called fixed oils and the fat of the body have not been credited with antiseptic powers. Fixed oils, such as the common oils of fruits and nuts, as olive oil, and peanut oil, or cocoanut oil, and animal oils, as sperm and lard oils, will not ferment from yeast, but, on the other hand, renders yeast entirely inactive. If we take a cake of yeast and immerse it in olive oil, it has no fermentive effect upon the oil, and if removed after the lapse of a little time, the yeast has lost its life and fermentative power. Then to these strong fermentative germs, oil is a true antiseptic and germicide.



In the tissues of the body, this power of oil to prevent the growth of fermentative germs is the power which equalizes and prevents the too rapid growth of these germs, which are necessary to life, but which, if carried too far, would assume pathological conditions, and overwhelm the body. There are conditions and perhaps germs which lead to a change in oil, and as a result glycerin and their corresponding fatty acids are liberated, but the germ which has started this process in the oil disappears under the action of still stronger antiseptic properties of oil thus created. It is said that (1) unknown germs cause neutral fats to take up water and split into glycerin, while glycerin is capable of undergoing several fermentations according to the fungus which acts upon it, but through this action the germ disappears. It is the putrescent substance with which the oil has been associated which has caused the change in the oil and the development of still stronger antiseptic properties, which finally overcome the germ. Oil in itself is said to possess an organic ferment which splits it into glycerin, and that the oxygen of the air may set the glycerin free, inasmuch as these processes go on without our being able to find the presence of a germ, all of which may possess truth in itself.

**Oil Destroys Tubercle Baccilli, and Other Disease Germs,  
and Prevents Their Growth.**

Oil will completely inhibit the growth of the tubercle bacilli, cause their death and dissolution, and if sufficient time be given, the germ will be completely dissolved or oxidized, and will disappear. These processes which I have carried on outside of the body for experimental purposes should be carried on in



the body in the prevention of fermentation of the waste of the lungs. Fats and oils are excreted by the lungs principally, of which we will speak more in detail later. If from the culture media we take a given quantity of tubercle bacilli, and transplant them into oil, they become inactive and will not reproduce when placed in their most suitable culture media and incubator, and finally, if sufficient time is given, they disappear altogether as tubercle germs. Olive oil, as is well-known, has frequently been used as an antidote to the poisonous effects of cantharides (Spanish flies), although the oil dissolves and takes up cantharidin. As the healthy, well nourished body stores oil in fat tissue, and between its muscular fibers and around and in many other tissues, the importance of this fat can not be overestimated, since it not only is a substance which may be drawn upon to supply the needs of the body to a greater extent, and more readily than any other tissue, but it also is a substance capable of rendering disease germs inactive, and is not fermentable by common fermentative germs. We thus see that fat is Nature's antiseptic.

Any butcher will tell you that fat beef will keep for a long period, compared to the short time it will take thin beef to spoil. Thin beef soon becomes slimy and decomposes quickly.

#### **Pure Rancid Oils Do Not Contain Germs.**

Fats and oils may become rancid from oxidation, (2) whereby fatty acid and glycerin may be developed, and although it resembles putrefaction, no characteristic bacteria could (3) be recognized by the microscopic or culture methods, nor could the rancidity of fresh fats be hastened by infection with rancid samples.



When (4) olive oil is heated to 220° C., it becomes lighter and nearly colorless, and, at the same time, rancid. The change of fresh oil to rancidity is also brought about by the solution of germs from the nitrogenous products, and of material other than oil. The reason that germs are seldom or ever found is from the fact that they can not develop, but undergo dissolution and solution. It is said that some people can not eat oils and fats, for the reason that the germs of the alimentary canal change the oil into glycerin and fatty acids and soaps, and that they thus pass out with the stools undigested. Clinically speaking, however, if these same patients persist in taking oil, it will soon be digested. Then, have conditions changed, and have the germs been overcome by the products of the oil which they have produced, as the glycerin, which is known to be mildly antiseptic? The patient with a foul breath and stomach experiences a pleasing relief when he adds oil to his daily diet.

#### **Fresh Oils May Be Obtained from Putrescent Substances.**

Rancid oils and butter may be rendered fresh again by washing. The substance foreign, if such exists, may be separated. An example of obtaining fresh oil from decaying matter is found in factories where animal matter is rendered for its oil. Olives, too, are allowed to undergo an over-ripening before the oil is extracted. Cod liver oil is rendered in some cases from decayed livers, and the dark oil thus obtained was formerly (5) esteemed most highly, though little given now, on account of its very disagreeable taste.

(1) Landois and Stirling: Text Book of Physiology. (2) Dulaux: Comptes Rendus. (3) Reference Handbook of The Medical Sciences, Vol. VI., p. 113. (4) U. S. Pharmacopœia.

(5) Wood: Therapeutics, Its Principles and Practice.



Milk possesses a ferment which is capable of digesting itself and is usually infected with myriads of germs. Perhaps many of them are beneficial rather than harmful (unless the milk is infected with disease-breeding germs, such as typhoid, scarlet fever, tuberculosis, etc.), yet these germs do not affect the fat of the milk, for when separated from nitrogenous products upon which the germs live, as in making butter from soured cream, we may obtain sweet oil.

While bacteria are desirable allies to the butter maker, and in development of the milk, they are not a part of the true fat, but of the nitrogenous products clinging to and incorporated with the fat, and as such give flavor to the butter, which would otherwise be considered flat. The same is true of butter which has undergone putrefaction, for this butter, by washing, again yields sweet oil. Cheese composed of fat and nitrogenous matter, depends for its flavor upon the germs which develop in its nitrogenous part, and, perhaps, in some cases to change in its oily parts, but it is noteworthy that the germs which affect it in time disappear, that the multiplication of bacteria in cheese is comparatively slow. In cream, where the nitrogenous part is greatly in excess, they multiply with prodigious rapidity, increasing as much as six hundred to a thousand-fold within twenty-four hours, but with cheese, while the bacteria increase for some weeks, such increase is very slow, and after a time comes to an end, and toward the close of the ripening period the bacteria are greatly diminished, while at the end there may not be even a single species or a very small number. The oil of the cheese has maintained the equilibrium of fermentation of the cheese, and in



the same way the fat of the body maintains equilibrium of fermentation.

The finest Italian wines, contrary to the usual instruction of placing the bottle on its side to prevent evaporation and other changes, are preserved by placing a small amount of oil in the neck of the bottle, which is placed upright. The oil preserves the wine from over-aging and destructive changes. Recent experiments which I have made point to the fact that urine may be preserved in the same manner for a considerable time with little change.

**All Forms of Life Have Their Enemies.**

The body in itself has its friends and its enemies in the form of germs. Thus we have the fermentative germs of the intestinal tract, which perform and aid digestion, but when these increase above normal quantities they become enemies. If they in turn had no enemies either organic or inorganic, this form of life would increase so as to overwhelm the body. That which is true of the body is also true of its organs, which in themselves constitute smaller creations. Some diseases may be due to an over increase of germs, which in limited numbers are essential to the body functions, but which meeting no enemy, and no resistance, have increased at the expense of the organ, and either through themselves or the products of their fermentation, have supplied the soil and food condition for other germs to thrive in. Fats help to maintain this equilibrium of fermentation, of health from disease. What wax (a fatty substance) is to honey in its preservation so is fat to the body.



### Heat and Nutrition.

In the animal body, oils and fats as food furnish two and one-half times as much force and heat as any other substance used as food. If other foods must take their place in the supply of this heat, we can see from the more circuitous process through which the digestion of foods other than fats must pass before their conversion into heat, that they must lose some of their value.

When food is not taken in sufficient quantities with fat in the right proportion, or for any reason is not digested, then to maintain the force and heat of the body the blood must draw from food poorer in heat producing qualities at the expense of the body tissues, and for this reason we meet with many under-nourished people. When heat and force must be drawn from the bodily tissues, where for the time being sufficient food is not eaten, as in the hibernating animals, the fat of the body yields first and foremost to supply this so that the body may maintain its normal temperature, so essential to health, and the prevention of disease, but when the body draws upon its own tissues to supply heat and force, there is lowered vitality, and consequently lowered resistance to the invasion and growth of germs, and there is less fat in proportion to the nitrogeneous parts upon which the germs thrive. The fat between the muscle fibers is exhausted, and, as a consequence, there is no resistance to fermentation in any of the tissues of the body by the oil; but, on the other hand, we have every condition of the body favorable to fermentative changes, there being no fat in the blood, and no fat in the tissues, which are lowered in vitality, and composed of such material



as disease germs feed upon. Such changes are contradictory to health, and permit the attack of various bacteria to which the body would otherwise be proof. Under these conditions it is no wonder that fermentative germs may increase beyond their normal function, and give rise to conditions favorable to the entrance of disease germs.

**Body Heat a Necessity for the Prevention of Disease.**

If for any reason too much heat is detracted from the body, as too rapid evaporation of perspiration from sitting in a draft, or the cooling of bodily tissues from the same or insufficient clothing, or a lack of proper food to supply the heat, then we take a "cold," of greater or less severity, affecting the mucous membranes, more perceptibly of the respiratory organs, and giving rise to the excessive flow of mucus, and if conditions which have lowered the heat, continue, then the "cold" may become more severe, and result in death, or in chronic disease of the lungs often resembling tuberculosis, indeed, from which tuberculosis may arise, as a rich soil for its production exists. The necessity of normal body heat for health is therefore evident. Thus the proper amount of heat-producing foods in our diet increase our vital forces against disease.

**Composition of Body Fat.**

Human fat consists of the three glycerides, palmitin, stearin and olein. Fat tissue consists of little bladders of vesicles of connective tissue, and may be regarded as an altered connective tissue corpuscle, which has become vacuolated, and holds oil. Around the cell and globule of oil is a thin layer of protoplasm. These become larger and more numerous, are held



together by connective tissue, and supplied by at least one artery and two veins to each composite globule. The bulk and richness of the fat fluctuates with the demands of the system for heat, when such foods as are necessary for its production are not in the daily diet. If an animal such as a hog is deprived of all fat from its diet, then its adipose becomes atrophied, and there exists only a cellular structure, free from oil, the same as has been noted in man. When an animal is deprived of food, the fat cells rapidly give up their oil to maintain heat and vitality; the cells of the fat, however, remain, though diminished in size. If they are partly well fed, even the protoplasm may grow, and the vacuoles may become filled with serous fluid, and they are then called serous fat cells. For this reason, all so-called fat people are not healthy.

#### **Reasons Why All Fat People Are Not Healthy.**

For the above reason, and for other reasons which I shall now briefly enumerate, all fat people are not healthy, but the person who keeps his adipose from the eating of oils and fats is healthy, unless he should change his diet to farinaceous foods, when the fat might become serous and lack in oil, the essential part for heat and force. Then fat derived from the eating of foods other than oil and fat is not so rich in its oily constituents, and these people again are not so healthy as those who derive their fat from fat foods and oils. The healthy person is one whose fat is firm with oil, and this comes principally from fat foods; on the other hand, the person who derives his fat from foods other than oil is more apt to be "flabby," possessing a more serous rather than oil fat.



**Adipose Tissue Has Not Received the Study from  
Physiologists It Merits.**

The physiological use of the adipose tissue of the body and its relation to the prevention of disease has not received the study which it merits, though it is only possible for me to direct the attention of physiologists who should make more detailed studies as to the relation of adipose tissue to other more vital tissues of the body than is given in any of the text books on physiology. At the present time it requires long and patient search of special articles on this subject mostly by foreign physiologists, and then it is only possible to glean a few facts from each article, there being no thorough and complete study as a whole on this subject. After reviewing all of the literature on the subject of adipose tissue, obesity, *et hoc genus omne*, and from careful observations of people and disease, I am able to draw the following conclusions as set forth in this paper.

Too much attention is given to the nonsense that fat is a disease. Our most conscientious physicians who make a specialty of reducing obesity agree that it is not a disease until it reaches such proportions as to interfere with the circulation and other organs, and even then, in the true sense of the word, it is not a disease, and the reduction of obesity must be done slowly and with great care lest harmful results follow. As a rule, this is done to please the patient's esthetic sense rather than for health.

**Simplest Use to Protect the Vitality of Tissues and Thus  
Enable Them to Throw Off Disease.**

That adipose tissue is useful and that one of its functions is the prevention of disease can not be denied



by any one who will give it even brief consideration. Fat, by covering the body, protects it from cold and the effects of cold, which are many. To illustrate this, we may refer to the incident related by that eminent physician, T. Lauder Brunton, M. D., F. R. S., published in the *Practitioner*, of London, 1878, of the then champion swimmer of England, Johnson, who attempted to swim the English Channel, but his strength failed, and when he was lifted into the boat by those who accompanied him, his limbs hung utterly powerless, which seemed to be due not so much from real muscular exhaustion, but to the effect of cold. Later the same feat was tried by Captain Welch, and many predicted that he would fail, not on account of lack of physical endurance, but on account of cold. Welch was fat; he succeeded in the attempt, and Brunton concludes that this was largely due to the thick coat of subcutaneous fat which covered him. When bodily tissue cools down from exposure to cold water or any other influence, we know that the muscles refuse to co-ordinate; the nerves which supply them do not convey the impulses and the muscles will not respond. From this we are to conclude that fat protects the body when exposed, which protection keeps the other tissues from exhaustion, and thus from their own protected vitality they are better able to repair their wastes and throw off disease; but this is the most simple and the least of the physiological uses of adipose tissue.

**Adipose Tissue the Wealth of the Body, Its Greatest Use  
Being for Diseased and Famished Tissues.**

The greater use of adipose tissue is to prevent disease and to serve as a supply of nutriment for other

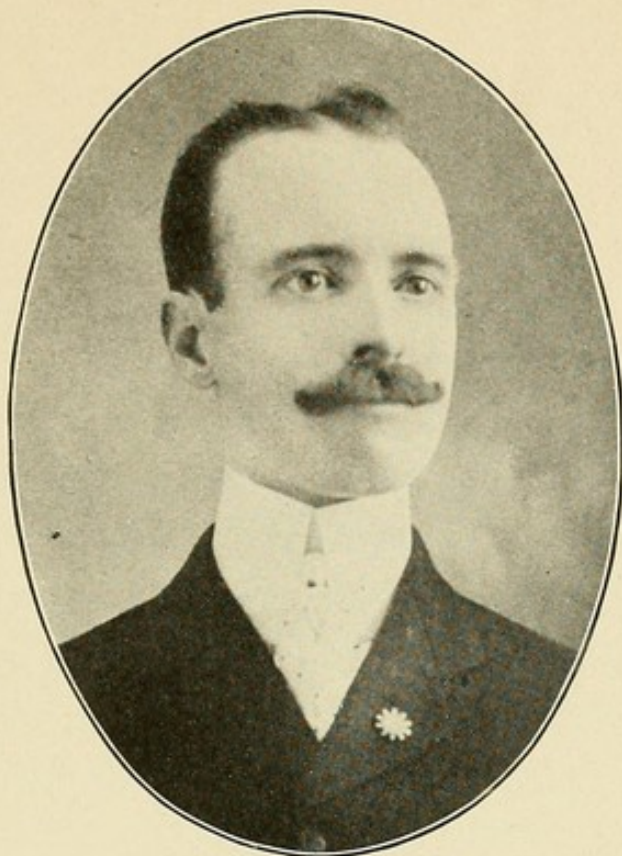


more vital tissues of the body, to all of which it is intimately connected. To illustrate this, let us take some of the cases of fasting that have been recorded. Fasting for experimental purposes has been carried on through the lower animals, and, of course, if continued, results in starvation. If all food is withheld, all tissues must yield their fat and other nutriment to carry on these functions. Adipose tissue yields first and most to co-operate with other more functional vital tissues, and it would, therefore, seem that this tissue was stored up in the body to feed these other tissues in case of need or necessity, as in waisting diseases or in the hibernating animals. In animals which are partly starved there is a large waste of bodily tissue, first principally fat, and then of the glandular organs engaged in metabolic activity.

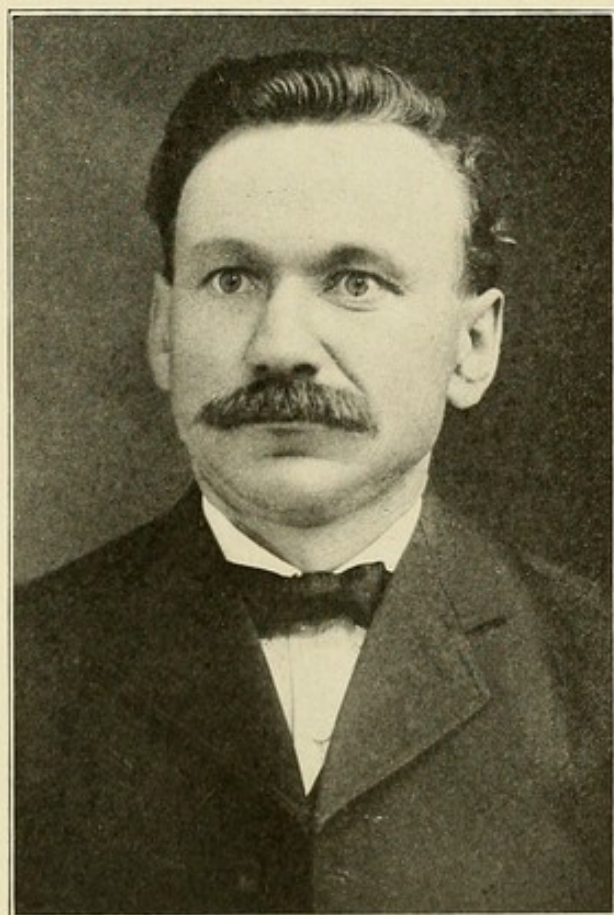
**A Healthy Person Should Not Develop Too Much  
Adipose Tissue.**

We should not develop too much fat tissue, but rather a moderate amount of rich fat tissue, thus making ourselves immune from many diseases, providing that we take exercise enough to keep up good muscular strength, and breathe deep enough to carry on a sufficient oxidation and transformation of fat tissue. We often see men engaged in sedentary occupations who have become so adipose, and consequently heavy that their undeveloped muscles become tired very easily when more than their customary work is performed, because of the great weight of fat which they carry, and because of their unusual work, and this we observe more particularly in those whose fat is built up largely from farinaceous foods, and the flabby, watery, beer fat, rather than those whose fat is





**Case XXIV.** Mr. R. J. G., who gained 6 pounds, recovered from pulmonary tuberculosis and remains well. He resumed his occupation. Treatment: Subcutaneous injections of oil. His life was renewed.



**Case XLI.** Mr. A. P., Chicago. This gentleman had acute tuberculosis of both lungs. Temperature 102 mornings and afternoons. He is in perfect health. He made a total gain in weight of 32 pounds. Treatment: Subcutaneous injections of oil. His life was renewed.







built up from fat and oil foods, and, as a consequence, rich in oil, and firm.

If we wish the greatest protection to our lungs a moderate amount of adipose development is desirable, but we should never allow the adipose to develop to such an extent as to become a burden, and a tiresome load to the system, for when once developed we can not reduce it without great caution, or health will be interfered with. If the diet is too meagre, and the exercise too great, then gall stones may develop, and as the oily or watery part of the fat tissue only is reduced, leaving the connective tissue, or atrophied fat tissue, as it is called, the fuel from our storehouse becomes greatly reduced. It would have been better not to have allowed the fat tissue to have over-developed, which could have been done easily, when sufficient adipose had been developed, by breathing properly, and with moderate exercise. On the other hand, when the lungs become once chronically diseased, we need have little fear of over-development of fat tissue. Healthy, rich, oily fat and tuberculosis are antagonistic, and directly opposite conditions prevail. If the tubercular patient becomes sufficiently nourished he becomes well. If he had eaten sufficient of fat and heat-producing foods he never would have had tuberculosis; therefore, when the lungs once become chronically diseased, or tubercular, fats and oils must be crowded to the greatest extent, and this can only be done with the subcutaneous injections of oil.



## CHAPTER XII.

### **LUNG EXCRETION AS RELATED TO TUBERCULOSIS —THE BODY HEAT AND FORCE—FAT FOODS IN THEIR MAINTENANCE FOR THE PRE- VENTION OF TUBERCULOSIS.**

#### **The Excretions.**

The excretions of the body are in main carried away through the feces, by action of the intestines, the urine, by action of the kidneys, the perspiration from the skin, water and gases from the lungs.

The feces consist principally of the undigested, unassimilated parts of the food taken into the alimentary canal, while the other excretions are end products of food, after assimilation. Nitrogenous foods are excreted mostly in the urine, while the hydro-carbons and carbo-hydrates assimilated, are excreted mostly by the lungs, the fats being oxydized, and excreted as carbon and hydrogen.

#### **Excretion of Lungs.**

The lungs excrete from six to twenty-seven ounces of water each twenty-four hours, the amount being governed by circumstances and surroundings, such as the amount of air respired, the dryness of the air, for the dryer the air the more water expired; the temperature of the air, for the lower it is the less amount of water expired, and the length of the respirations, for the air in rapid respirations does not have time to



become saturated with the watery vapor. The average amount of water excreted by the lungs is from nine to ten ounces, with some carbonic acid, free ammonia, and a minute amount of organic matter.

### **Co-Relation of Excretory Organs.**

This excretion from the lungs may vary, according to conditions, and the workings of the skin and kidneys. Where the kidneys refuse to work, as in uremia, the odor of urea is prominent in the breath and secretions of the skin. Sweetish odor of the breath is also often characteristic of diabetics. If, for any reason, the body is cooled too rapidly, the perspiration and kidney functions are often checked to such an extent that they do not carry off the organic matter which they should, some of which may then be carried off by the lungs. Even anger, strong emotions, and fear may increase or check excretions.

Cold, exposure, want of food, want of sleep, and irregular habits, all tend to weaken vitality, and alter excretions. The conditions of the body as to health, and its reserve store of adipose, and other individual conditions at the time of exposure, may either exaggerate the action of cold or augment the force of resistance. We all know, from personal experience, that when the body cools too rapidly we are very likely to take a "cold," characterized by the formation of mucus from the membrane of the throat, or if more severe, of the lungs, and if the system is "run down," this cold may result in acute disease, bronchitis, or pneumonia, or it may become chronic, and after the lapse of a few months it is very general to find the tubercle bacilli.



**Fermentation of Lung Excretions.**

The loss of heat which the body sustained from exposure, or lack of heat-producing foods, and which resulted in the "cold," may have caused a condensation of the watery products of the breath, which, because of checked excretion from the skin and kidneys, may have contained more organic material and given rise to a species of fermentation, or the soil for germ development, and thus, "The condensed aqueous vapor is found soon to decompose, and to contain substances which are of a poisonous nature."—Kirk: Text Book of Phys., p. 283.

One of the first symptoms of "taking cold" is to sneeze; we do this to expel condensed watery vapor, later we may cough. As vapor rises it would be more likely to condense in the apex of the lungs, as vapor formed there would not have so good a chance of escape as if rising from lower in the lungs. As the body has lost heat from exposure, the "cold" affects the mucous membrane of our breathing organs, and, unless the body is supplied with sufficient heat-producing energy food, it will not be able to overcome the acute condition, which then becomes chronic, and often tubercular. On the other hand, no acute cold may have taken place before the implantation of the tubercle bacilli, or other germs, but these have found soil in which to grow, because of the lowered vitality of tissues, and lowered heat excretion, the degree and extent of which greatly influence the extent of development and pathology of disease. Thus the tubercle may not be inflamed, may undergo cheesy, or fatty degeneration with disappearance of the germ, and be expelled, not causing any symptoms whatever, other than the lowered vi-



tality. The tubercle bacilli may give rise to a wide variation of pathological conditions, from chronic fibrous phthisis to acute, or chronic miliary tuberculosis, and with many phases of resistance, by which the body has endeavored to fortify the remaining healthy tissues, all corresponding to the energy and vitality of the body, which in the lungs must depend more than any other tissue of the body upon the amount of heat the body is able to give and maintain, since lack of heat, producing a "cold," affects the mucous membrane of the respirating organs more than any other of the body. In the *Manual of Human Physiology*, by Landois and Sterling, 1891, the effects of a sudden change of temperature, from warm to cold, are noted upon rabbits, which, when taken from a surrounding temperature of  $35^{\circ}$  C., and suddenly cooled, shivered and diarrhea resulted. After two days the temperature rose  $15^{\circ}$  C., and albuminuria occurred, and there were microscopic traces of interstitial inflammation in the kidneys, liver, lungs, heart and nerve sheaths, the dilated arteries of the liver and lungs contained thrombi, and in the neighborhood of the veins were accumulated leucocytes.

It will be seen that the effects of cold upon a rabbit produce many of the pathological changes which are noted early in pulmonary consumption, such as albuminuria, which has been noted as a frequent forerunner of tuberculosis, and which is often associated with poor fat assimilation, while the inflammation of the lungs, and other vital organs, shows how they have become weakened from their lack of the proper amount of heat, which was essential for their health. Though in health the temperature of the body seldom falls below normal, there are times when it must be able to



give out greater heat to maintain this equilibrium for health.

In cold climates the body accustoms itself to the production of more heat, and such people have better appetites for heat-producing foods. If they do not eat such heat-producing foods then they are very much affected by the cold, are thin, anemic, and blue, for the blood then exhausts the elements from muscle and fat to produce the heat and force of the body; even the blood yields its own constituents to maintain the body heat, and, under these conditions, we see why the body becomes impoverished and bankrupt. On the other hand a cold climate is beneficial in the production of a vigorous constitution, and a healthy pair of lungs, providing we live upon a diet sufficient in those foods which supply heat, most prominent of which is fat. If a proper diet, composed largely of heat-producing foods, is eaten, then a cold climate soon accustoms the body to the production of heat, which is essential to the production of a vigorous vitality. Thus Arctic travelers, becoming accustomed to cold, may expose themselves with impunity, and even comfort, to a low temperature that would be attended with serious results in a Southern latitude, where the body had not accustomed itself to the production of heat, and where the body tissues had not accustomed themselves to be drawn upon to supply the heat, as in over-exposure. For this reason, in the treatment of the tubercular I prefer a cold climate. Even in the Southern and Southwestern States it is found that the tubercular patients make more rapid headway toward health during the cold winter months.

But if the patient, or man, does not eat sufficient of the heat-producing foods then a cold climate is



detrimental. If he wishes to be well as to body and lungs he must train his appetite to the use of heat foods, otherwise the paralyzing action of intense cold leads to diminished vitality of all bodily elements, making the system liable, particularly, to such diseases as affect the respiratory tract, and this lack of fats in the diet is the cause which furnishes the soil for the production of tuberculosis.

### **Further Importance of Bodily Heat.**

From the moment we are born, wrapped in our swaddling clothes, until death, all efforts to preserve health are first and last directed to prevent taking cold. Our first efforts to preserve the heat which the body produces is by clothing, a place of habitation, and by external heat. Unconscious as to results, and the workings of the great human machine, most, or all people with chronic lung trouble are poor firemen, they do not feed themselves properly; while they may eat plenty in quantity, and supply their trained, pampered appetites, they do not eat sufficient of the heat-producing foods, which are so important to maintain the vital functions of the lungs, their force and resistance against disease.

The effects of heat applied externally are partly known, and often applied in every household, in the form of hot flat-irons and plates, or stones, and modernly by the hot-water bag. The use of heat by machines for its high development up to 400° F., applied to affected parts, I have used with most beneficial results to relieve pain and swelling after dislocations, and to produce rapid healing of fractures. That heat applied externally is of great therapeutic value in many cases, that proper maintenance of body heat by



sufficient clothing and habitation is one of the primary essentials for the cure of disease, is apparent. That the maintenance of normal even bodily heat is important to life, we have evidence in the incubator. In the reduction and loss of body heat there is a corresponding reduction of vitality, and even before the temperature of the body is reduced where body heat is deficient there is deficient vitality of organs, noticeable principally and first, in the respiratory organs.

If the body heat is not maintained at an even temperature it is due, in the case of fever, to diseased conditions. When the temperature is lower than normal we find lowered vitality, and conditions favoring the development of disease. The body may re-act and produce fever in its endeavor to rid itself of the pathological disease, but in this case its source of heat is usually drawn from the tissues, at their expense, which must waste and diminish in size; since proper food has not supplied the heat, it is not likely that the patient has any fat tissue upon his body, or it would have been drawn upon to supply the necessary heat and vitality, which would have overcome a reasonable amount of exposure. When a person eats a proper amount of heat-producing foods he is better enabled to ward off disease from his own source of body heat and vitality. When this food is not needed by the system it is stored up as fat tissue for a reserve fund of fuel upon which the body may draw if for any reason the person should be over-exposed. By its own thickness fat tissue also protects the heat of internal organs, and the body.

**Adipose Tissue the Stored Fuel of the Body—Healthy and Unhealthy Adipose.**

Every well-nourished person should possess enough adipose to be plump, for adipose tissue is the stored



fuel of the body, and a protection, the least of its uses being to protect the more vital tissues from cold, and thus from their own protected vitality, preserve heat and health. It is a great reserve fund stored, from which heat, energy, and consequent vitality may be drawn, and upon it is dependent greatly the force and resistance to disease of all organs, and more particularly the lungs. It is as easy to fatten men as it is animals; the secret lies in a proper diet, but the fat tissue which protects us from disease is that which is derived from fat and oil, rather than that derived from the assimilation of other foods. On account of the construction of fat tissue, and its variation of cell contents, from oily substance to watery, serous substance, we can readily see that the highest degree of vitality must come from that which has most substance for the production of heat and force, and that the heat and force would not be derived so much from flabby fat, poor in oil, and should it be too watery, then it is often a burden to the body, a drone, requiring to be fed and nourished, and has little to give to supply the blood, which, under these conditions may become anemic.

Almost all consumptives, if not all, are deficient in heat production as a fore-runner of the disease because they have not eaten sufficient of the heat-producing foods, fats and sugar.

The heat of the body should be maintained by the heat-producing foods which we eat, in order to protect the tissues. We must also wear clothing sufficient for the climate in which we live. Warm, dry feet are one of the essentials for preserving the body heat, which may then be used for the increase of vitality, instead of warmth; and the importance of proper protection with clothing, that the heat of the body may go to



maintain vital action in both mind and body, instead of being spent to maintain heat lost through evaporation, is very essential in the preservation of health, the prevention of mal-nutrition, and mis-appropriation of body nutrition, the prevention of catarrhal diseases and tuberculosis.

Subcutaneous injections of oil supply the fuel for heat and vitality which is lacking in all mal-nourished conditions.



## CHAPTER XIII.

### **LUNG DEVELOPMENT—THE LUNGS BOTH GIVE AND TAKE.**

It is agreed that when the lungs once become actively diseased any exercise which is at all violent, or if carried too far, will result in injury, as it will often produce fever and extension of the disease; on the other hand, if the disease is not active he may do much to develop the capacity of the remaining healthy tissue, and the elasticity of the chest walls and articulations of the ribs.

Healthy lungs are often exercised too much and their vitality injured. At the meeting of the State Medical Society of New York (Trans. of the Med. Soc. N. Y., 1886, p. 115) Dr. Ely presented a paper on pulmonary gymnastics, saying that physicians in general practice frequently see patients with deficient pulmonary capacity, due either to lack of adequate chest development or to conditions of a chronic nature which compress or condense the air cells, and that if any real benefit was to occur from the employment of pulmonary gymnastics it would only be obtained after months of faithful practice; further, he says: "To recapitulate: Among the remedies in many conditions of defective chest expansion, inherited or produced by disease of a latent or inactive character, pulmonary gymnastics should be accorded a prominent place. They are contraindicated in all acute diseases of the lungs." In the discussion which followed in regard to



the above-mentioned paper, Dr. A. L. Loomis says: "One word in regard to pulmonary gymnastics, a subject raised by Dr. Ely. When much younger I gave a great deal of attention to this matter, believing that it would prevent the development of latent phthisis in my own case. I became convinced during college that gymnastics, when practiced while the health is below par, enfeebled rather than strengthened the respiration, and increased the liability to catarrhs, etc., so that unless one is in first-rate physical condition I think the proposed plan of pulmonary gymnastics, if carried out, will be more liable to do harm than good." "As regards pulmonary gymnastics in pleuritic adhesions and pulmonary phthisis, that is another matter." "As to college training, rowing, gymnastics requiring prolonged muscular effort which young men are being put through at the present time, it seems to me that it is laying the foundation for a great many cases of cardiac disease; and from my own personal observation I find that phthisis is developed in a large proportion of the prize men at college, the men who head the nine. These are men who overstrain during the development period, and the men who are afterwards subjects of pulmonary phthisis. Within the past two or three years I have been keeping records, and I have been astonished at the large number of that class of men who develop phthisis or cardiac disease; and I believe it is nothing more or less than an overtaxing of the respiratory and cardiac organs during the development period."

### **Lungs Give and Take.**

Let us pick up the threads from where Dr. Loomis left them and see what is to be deduced and



how the lungs are to be properly developed. In the discussion we are told that too much lung exercise is not beneficial. I maintain that the reason for this is that the lungs both give and take, and that the exercise must be proportioned to the food eaten which is to be oxidized. The lungs give oxygen to the blood, but they take away watery products, carbon and other matters. The oxygen unites with the blood and produces chemical changes in it. Then if there is not a good supply of the heat and force-producing foods in the diet, and a good store of fat in the tissues, other more vital tissues will be drawn upon, and be oxidized or changed and given out through the lungs as carbon for the oxygen which has produced the change. If this goes on and the body be not well nourished and able to withstand this oxidation of tissue, then the system may become bankrupt, for the more vital tissues must yield to the chemical action until finally even the blood must yield itself for oxidation, and, as a consequence, there is a diminution of its constituents.

The lungs with their increased draft from exertion have burned up the supply of heat-forming tissue (reserve fat), and if the exercise has been carried too far it exhausts the engine itself, burning up its vital tissues. Fortunately, when this happens the body becomes too weak and exhausted to carry on further exercise and recuperates readily if not overtaxed, but proper heat-producing foods must be supplied in just such abundance as not to allow the exercised lungs and increased oxygen to consume the body tissues, but to consume the fat eaten in our diet in sufficient quantities to supply the tissues with their force and heat. As evidence that rapid breathing and lung gymnastics ex-



hausts the blood, we may refer to the well-known effects of cold, and the rapid breathing produced by high altitudes, which, when not counterbalanced by proper food, leads to pernicious anemia. If we take more exercise than consumes the fat of our diet we weaken our lungs; therefore, development of the lungs by exercise must be proportionate to the amount of tissue-forming and oxidizable foods which we eat.

Fat once taken into the system departs almost entirely by way of the lungs, in the form of carbon and hydrogen. That fat foods have the greatest influence in the development of the broad, flat, healthy chest I am thoroughly convinced from the observation and study of many individuals. Lungs develop according to their work, and since they both give and take it is reasonable to believe that both functions are as important, the one to the other. The narrow chest is common to those people, more particularly, who do not eat a plentiful supply of fat, and who are descendants from parents who do not eat sufficiently of these foods.

#### **Exercise Must Be in Just Proportion to Nutrition.**

So far we have tried to make it plain that development of the chest by exercise must go "hand in hand" with a proper diet, particularly of those foods which are oxidized and eliminated by the lungs, and when this relation is maintained, exercise in just proportions is beneficial.

If young people were taught the value of proper food and taught the correct way of breathing the lungs would develop accordingly, and the resistance from disease would be increased. It is very important that the young be taught the correct way of breathing, for then when carried on correctly there will be an increase of appetite and of the vital functions, provid-



ing this appetite is supplied with proper food; there will be a greater lung capacity, and increased movement in the bony articulations of the chest, and by correct method of breathing and a just proportion of proper food we regulate the general blood and lymph circulation, for every protoplasmic unit of the body must have its essential quantity of oxygen, but that protoplasmic unit must be there to unite with the oxygen in such an abundance that the body will not be defeated, then in return for the oxygen it yields its products of activity. Proper breathing and proportionate food is, therefore, of the utmost importance.

### **Methods of Breathing.**

There are three types of breathing which have been described as normal; first, the diaphragmatic; second, lower costal; third, total costal. The first two may be entirely independent and distinct forms of breathing, and the third form may be distinct and independent of abdominal or diaphragmatic breathing. Each one of these forms of breathing has had its advocate, and each has been developed distinctly, according to various views and methods, as aids in singing and oratory, but for the healthy well-developed body there is but one way of breathing, and that is by combining the three. With each inspiration the abdomen should raise, the lower and upper chest wall should expand and raise. By this method of breathing it will be found that the well-developed individual, without practice, will be enabled to inhale (by actual measurement) about one hundred cubic inches of air more than by a combined lower costal and diaphragmatic breath, and about two hundred more cubic inches of air than by a pure diaphragmatic breath.



### **Breathing Exercise.**

Breathing exercises, as previously stated, should never be carried to extremes. A very good method of exercise to teach the young to breathe correctly is to have them lie straight on their back, placing a book or other article over the umbilical region, and with each inspiration the book is to raise, together with the ribs of the lower and upper chest, which are to raise and expand, thus teaching a combination of the forms of breathing.

### **Indications for Exercises.**

Various exercises are particularly indicated where there is permanent ossification of the upper costal cartilages and lack of mobility in the articulations of the clavicles and articulations of the ribs. Other exercises will be found beneficial to promote a greater range of movement, such as slowly swinging the arms, raising the shoulder, and rotation of the shoulders forward and backward, which must be carried out systematically, in order to derive health from them, but first teach proper breathing and diet.

Development of the lungs and their resistance from disease must be by a proper proportion of exercise to the oxidizable, heat-producing foods, particularly fat foods, or hydro-carbons. They are principally excreted by the lungs in the form of carbon in exchange for oxygen, and may be drawn upon to supply the extra oxidization, heat and energy for movement and exercise. Otherwise such must be drawn from the body to deplete, rather than strengthen, the tissues and resistance to disease. For the above reasons subcutaneous injections of oil will do more to develop the lungs than any other means.





**Case XXXIX.** This well known actress gained 20 pounds in weight during a period of 40 days, and 40 pounds in three months, under treatment with subcutaneous injections of oil. Previous to this treatment she was on a ranch in Texas for her health, but was failing fast. Her relatives urged her to leave Texas and come here for treatment, which she did. Besides the gain in weight, her severe night sweats stopped after the second week's treatment. Her life was renewed.



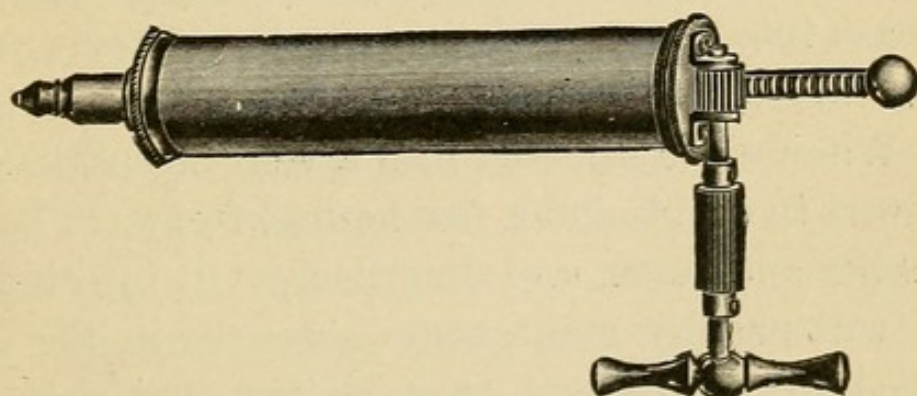




## CHAPTER XIV.

### METHOD OF MAKING THE SUBCUTANEOUS INJECTIONS OF OIL.

In making the injections of oil into the tissues we select a point over the shoulder blade, using all of that surface of the back over the area of the lungs, with the exception of about two inches on either side of the spine. I select this area for the reason that the slight soreness which the injections cause are beneficial to the patient, producing counter irritation in the same manner as a blister or seton, which in early days was a very popular treatment for consumption. Indeed, I recall a case which came to me some time ago, who said that he had been cured of consumption twenty years ago by a seton being placed in the muscle of his chest, each day pulling the ringed ligature around so as to keep up the soreness. I do not know how much bene-



The Keyes' oil syringe. Cut about 1-3 size. This syringe was devised by the author for making subcutaneous injections of oil.

fit he received from it, but he presented the appearance of a very healthy man. You will therefore see that the soreness produced in this region is beneficial from its



counter irritating effects, the benefits of which are not deniable. Where there is no active disease in the lungs, we sometimes make the injections in the hips, as often it is less painful here. With some patients, however, the injections cause less pain in the shoulders. Each day we select a different point for the injection, usually injecting first on one side and then on the other, and either higher or lower or to the side of the former injection, because some slight soreness may remain at the site of an injection for about thirty-six hours, although not enough to inconvenience the patient. As a consequence the injections are more pleasant on a different spot. The site to be injected should first be wiped with alcohol or turpentine on sterile cotton. I am in the habit of rubbing the turpentine soaked cotton briskly over the entire area of the region over the back of the lungs.

Great care should be taken to have the needle properly pointed. The ordinary or regular pointed needles are dangerous and not suitable for these injections for the reason that they are pointed too long and fine. A fine pointed needle will, too frequently, make the injections pass into a vein and this we should try to avoid as it is very liable to produce an oil infarction in the lung. When oil is injected into a vein the patient will often start to cough and a few hours afterward he may have chills and fever and diarrhœa. Oil injected into a vein will usually make some soreness in the chest, described by the patient as a feeling that they have taken cold, and the patient is very apt to lose some in weight. If the above should happen too often our patient would have continual set-backs, and would not gain in weight or recover from the disease. To enable me to avoid the above I sharpen all my needles to a



blunt sharp edge. The straight side of the needle should be the part which holds up the pressure when the needle is placed in the skin. When the needle is properly placed it will not give scarcely any pain and the injections are also made with but little pain. If the injections are not given properly they produce unnecessary pain.

The skin must be raised between the thumb and forefinger and the needle placed well through the skin. If the needle is placed into the skin at too slanting an angle it will produce more pain, for the reason that there is a longer tract of skin through which the needle must penetrate, and because it is in the skin that the tactile nerve fibers are most developed, consequently, most of the pain from the injection is in the skin. As the skin is very thick over the back, if the needle is placed in at a slanting angle, while it may enter the full length of the needle, it may still not be entirely through the skin, but between the deeper layers, and if an injection be thus made it will cause considerable pain, described by the patient as a feeling as if the layers of skin were being dissected apart.

It has taken me years with much observation to perfect my methods, and many of the important features in the injection could be better demonstrated than described. Upon the proper method of injection will greatly depend the success or failure of this treatment. Therefore those using are cautioned to become expert in the application of the treatment and not to condemn it for lack of proper knowledge of its application.

The amount of oil injected will average 1 ounce once daily. To commence with, I use a smaller dose for the first three days. For giving these injections,



I have devised a special syringe which works with a thumb-screw, and we are thus able to make the injections without shaking the needle and with less pain to the patient. A dressing of collodion should be placed over the puncture when the needle is withdrawn, so as to hold the oil from leaking. For these injections I have used various oils. Among them may be mentioned, cod liver oil, sperm oil, cocoanut oil, peanut oil, olive oil, and egg oil. I have discontinued using the cod liver oil and sperm oil for the reason that animal oils are not so quickly absorbed as the olive and nut oils, and they produce greater soreness, and their method of preparation can not be relied upon as being so clean. I find that by changing the egg, olive and nut oils and mixing them, that the greatest good seems to come.



## CHAPTER XV.

### DIETING AND COOKING FOR THE CURE AND PREVENTION OF CONSUMPTION.

#### **The Prevention and Cure of Consumption.**

I make the statement and have here tried to prove, that consumption exists only among the poorly nourished. The consumptive has failed to eat a sufficiency of fats. By proper dieting consumption can be prevented.

From the very earliest history of medicine consumption has been looked upon as a disease of malnutrition, that is, that first there has been a deviation from normal metabolism resulting in blood poverty, often lack of development, weakened tissues and organs. The prevention of the disease rests in establishing a habit of body which will digest or assimilate fat foods, and the eating of a diet with a sufficient amount of fats to maintain nutrition, so that the germ cannot grow or thrive. As physicians we should certainly be brought to a full realization of our responsibilities as guardians of health by such data, and not confine our efforts merely to fighting the germs, but also to the building up of the defensive powers of the body, which is of greater importance.

#### **Diet for the Consumptive Invalid.**

The diet upon which I put my consumptive invalid depends entirely upon the condition of his health when treatment is commenced and while undergoing treat-



ment. Patients having any great degree of fever I invariably put to bed and if the fever continues I put them upon a milk diet.

### **The Milk Diet.**

Milk as a diet for consumptive patients has been recommended from the earliest antiquity. It was largely relied upon by the very earliest physicians of whom we have any writings. In giving a milk diet to consumptives we must remember that in order to cure the disease the patient must be nourished to the greatest possible degree. The amount of milk taken should not be less than one gallon to start on, which should be increased to two gallons each day. This is best given every two hours for eight feedings. The amount will thus be one pint to one quart to each feeding. The milk should be given warm and some diastase may be added should there be a tendency for it to lie heavily upon the stomach. A few crackers may be eaten by the patient with the milk, which should be drank slowly. The milk for our patient must be the pure and natural product, rich with cream, and free from preservatives, which would delay its digestion.

### **Koumiss.**

Another form of milk diet is koumiss, and is of much greater value than milk, because it is pre-digested and easily assimilated.

Koumiss as an aid to the cure of consumption has been used for many years in Southeastern Russia, where many patients suffering from consumption, chronic bronchitis, gastric intestinal catarrh and other wasting diseases, take long and tedious journeys



for this koumiss cure. There it is made of mare's milk, bottled in the smoked skin of a horse's quarter. Koumiss is fermented milk and is a preparation not curdled by the juices of the stomach, while at the same time it possesses all of the nutritive qualities of milk, and is pre-digested, ready for assimilation, with the extra addition of fermented spirit. The albuminates of milk have been converted into peptones, and the casine has been changed into solid albumen and peptone, milk sugar into lactose and alcohol, and the oily constituents thus mixed are more easily and readily assimilated. It will be seen that koumiss is a great nutritive food, and furnishes directly what must be acquired from other foods by a longer process of digestion. Being diuretic it relieves the mucous membranes from congestion and by this action often stops a troublesome cough. It improves the vascular and muscular tone, and the complexion takes on a ruddy hue. In the various books published on the geography of diseases, we frequently see it mentioned that on the steppes of Russia tuberculosis is not so common, and when found is not looked upon with the dread, or as the great white plague, as it is in other countries, for the inhabitants look upon koumiss as prepared by them as a cure for the disease. The remarkable manner in which, after leaving his tent, the thin and wan Nomad grows stout, and regains his healthy look and ruddy complexion, has often attracted the attention of travelers and medical men, and various treatises have been written upon the koumiss cure for consumption. There it is common to drink several gallons daily.

After a few weeks of the combined treatment which we have here mentioned, principal of which is



the subcutaneous injections of oil, the hitherto conspicuously prominent bones of the consumptive patient become covered with a thick coating of fat and muscle; the sunken and bloodless cheeks fill up and assume a rosy hue, the drooping spirits revive, and a most remarkable change transpires. The patient who previously was suffering from fever now is apparently healthy and is ready to be trained to live upon a solid diet with an over generous amount of fats, butter, etc., for this is essential that the patient may remain well.

### Other Liquid Nourishment.

Where milk and its preparations, such as koumiss, are distasteful to the patient, a liquid of much nourishment and benefit may be made in the form of thick bean soup with butter, or what we have termed cream of oats may be used. Bean soup may be made by soaking beans in water for about twelve hours, which are then crushed and boiled and then filtered through cloth; to this must be added a large amount of butter. Tofu, a bean cheese, is made by the Japanese from soy beans, first made into a bean soup similar to the above, without the butter, and in its composition this milky fluid resembles cow's milk, as will be seen from the following analysis, taken from Bulletin No. 58 of the Agricultural Department:

#### COMPARISON OF THE COMPOSITION OF SOY BEAN MILK AND COW'S MILK.

| Constituents—     | Soy Bean Milk | Cow's Milk |
|-------------------|---------------|------------|
|                   | Per cent.     | Per cent.  |
| Water .....       | 92.53         | 86.08      |
| Albuminoids ..... | 3.02          | 4.00       |
| Fat .....         | 2.13          | 3.05       |



|  |      |      |
|--|------|------|
| Fiber .....  | 0.03 | .... |
| Ash .....  | 0.41 | 0.70 |
| Nitrogen, free extract including<br>carbo-hydrates ..... | 1.88 | .... |
| Milk Sugar .....   | .... | 5.09 |

Cream of oats is made from oat flour. To two teaspoonfuls of this enough water should be added so that when boiled there will remain two glassfuls, add one-sixth pound of fresh butter, season to taste. Extract of beef may be added if the flavor is more agreeable. This preparation is very valuable throughout the treatment, and even when the patient is so far convalescent as not to have fever or cough, or does not raise mucus, I continue, with this to be taken with the breakfast and late dinner. Patients becoming thus accustomed to the large amount of butter should continue with this even when thoroughly well to prevent the return of the disease.

While the patient is on the liquid diet of milk or koumiss I give internally about one ounce of olive oil twice a day at about 10 A. M. and after the last feeding at night. This is best taken and more easily assimilated by adding a little wine.

Sugar occupies a prominent place in milk. Milk might be considered a thin syrup holding in suspension small globules of oil. Sugar and fat are the chief fuel ingredients of milk and all other foods. Fat is a more concentrated fuel than sugar, yielding nearly two and one-half times more heat. Of second importance to fat in the cure and prevention of consumption I consider sugar because of the carbon which it yields and its ease of assimilation. In treating tubercular patients I have them take for its nutritive value, a cane



syrup combined with stomatics, stimulants and bitter tonics.

### **Diet for the Convalescent Tubercular.**

After my patient has no rise from normal temperature I gradually increase the solids in his diet until he is able to be up and about without increasing his temperature, when I put him upon a full diet. In every case the patient is to be fed every two hours. With the tubercular patient not confined to his bed it is customary for me to commence feeding him an hour before he is to arise and begin with a rum punch, made by adding one or two teaspoonfuls of old Jamaica rum with some sugar to a glass of milk or cream. By doing this the patient will not lose vitality in dressing, and it often improves the appetite for a hearty breakfast.

### **Cooking and Diet for the Prevention and Cure of Consumption.**

In preparing and cooking food for the thin and poorly nourished and for those of a tubercular tendency, and particularly for those afflicted with the disease, large quantities of fats, butter and oil should be so incorporated in the cooking as to disguise them and make them palatable to those individuals who abhor fats. Dressings and gravies rich with fats should be prepared, and vegetables should be cooked with large quantities of butter and cream.

### **The Secret of Making Thin People Fat.**

That which I hold of greatest importance to make thin people fat and well nourished is to combine a diet coarse in fibre for its mechanical action, with plenty of fats for nutrition. To accomplish this one or two well cooked vegetables, which contain a large amount of fibre should be eaten with at least two of the principal



meals. These must be cooked with butter or fats, otherwise there will be little nourishment to them. These coarse foods have two beneficial actions, both mechanical; one is that they hold by their bulk and fibre the oils and fats in the intestine until they are absorbed, and the other is that they increase the strength of the intestine—a sort of gymnastics for the intestine is given because of the larger bulk which must be taken care of and because of this large residue constipation is overcome.

The nutritive value of food depends largely upon its manner of preparation and cooking. To be palatable, attractive and appetizing, it must be of first quality, fresh, not kept too long by cold storage process, free from preservatives, and then must be well prepared and cooked.

A fatty diet is an essential part of the treatment for tuberculosis, but this in no way takes the place of subcutaneous injections of oil, for the reasons which we have already given.



## CHAPTER XVI.

### MEDICINES AND OTHER MEANS WHICH I USE IN THE TREATMENT OF TUBERCULOSIS OTHER THAN THE SUBCUTANEOUS INJECTION OF OILS.

Of the medicines which help to maintain nutrition we may first mention the oils, if they may be considered medicine, though in reality food. In my own practice I would say for internal medication I have come to look upon pure olive oil as the most important. It is best borne by giving it with port or sherry wine, which covers the taste of the oil and aids in its assimilation. I generally prescribe it in doses varying from a tablespoonful to an ounce, after breakfast and after supper. Some patients can take it in larger doses, using a gallon each month, and I encourage its use.

Malt preparations are often indicated where there is marked alimentary disturbance, and particularly where starches are not digested, or where the patient has a catarrhal condition of the alimentary canal, as they often have in weakened conditions of mal-nutrition—another reason for the subcutaneous injection of oils, as we shall see. This catarrhal condition is found to extend through the ducts of the liver and the pancreas, and these organs thus become deficient. Experiments show that the bile and pancreatic juice greatly aid in the promotion of absorption of fats. Loomis, in his text book on *Practical Medicine*, mentions the frequency of hemorrhoids and rectal troubles



in this disease as due to the portal obstruction. Hedon and Ville (*Comptes rend, de la Soc. de Biol.*, 1892), diverted the bile in dogs from the intestine by means of a biliary fistula and afterward partly extirpated the pancreas. Under these conditions fat passed through the intestinal tract undergoing little absorption. The fats were converted into fatty acids and glycerin, or were unchanged, and in either case were expelled.

The above operation, in the opinion of Lewin (*Pfluger's Arch.*, lxiii, page 171, 1896), was too severe for the animal, so this author employed a modification of Thery's fistula. His method was as follows: In three dogs the duodenum containing the openings of the bile and pancreatic ducts was separated from both the stomach and jejunum. The upper end of the jejunum was then united to the stomach, the continuity of the alimentary canal being thus established. After closing the upper end of the loop with sutures, the lower jejunal end was affixed to the skin. After the dogs had fasted for four days they were fed on cream and in five hours killed with ether. At the autopsy the cream was found along the entire length of the gastro-intestinal canal; the fluid in the mesenteric lymphatic vessels had almost no milky appearance. Under the microscope no fat droplets were found in the epithelium cells of the villi. The lymph cells within the villus contained fat droplets. After total extirpation of the pancreas in dogs (series 3) and feeding them with cream, the appearance of the lacteals, and the microscopical appearance of the sections of the intestine were similar to those above described, and a biliary fistula was established. The administration of cream to these dogs showed results as regards the



appearance of the lacteals, and of the intestinal epithelium similar to those already described. Summing up his results, Lewin concludes that during the process of absorption of neutral fat in the intestine of a normal animal, we notice that the epithelial cells of the villi are filled with fat; but when by operation the bile and pancreatic juice are excluded from the intestine, the epithelium cells of the villi contain no fat, and consequently in none of the described experiments did complete normal absorption occur, which is also verified by the fact that the chyle did not have the usual milky quality as in normal animals, in spite of the fact that the dogs were fed with fat. These experiments pointed out that for the complete assimilation of fats from the intestine it is necessary for the simultaneous action of both the bile and the pancreatic juice.

Cunningham (*Jour. Physiol.*, 1898-'99, Vol. 23, page 209), relates six experiments upon dogs as regards the absorption of fats. In the method pursued by him the dogs were made to fast for two or three days and then the pancreatic and bile ducts were divided between ligatures, and the stomach was felt to determine its absence of food. The animals were then made to fast forty-eight hours, at the end of which time 200 cc. of milk or 120 cc. of either emulsified oils, pure cod liver oil, or pure cotton-seed oil were given by means of the stomach tube. After the expiration of from six to twenty-four hours each animal was killed and its lacteals examined for chyle. The results of the experiments seemed to indicate, says Cunningham, that in the absence of both the bile and the pancreatic juice, unemulsified vegetable oils—viz., cot-



ton-seed oil and olive oil—can be absorbed from the intestine of the dog.

From these experiments it will be seen that the tissues of the body will not derive the amount of good which they should from fats, because of non-absorption, when there is great alimentary disturbance, and where we have reason to suspect lack of bile and pancreatic secretions, which conditions may have been brought about, as we have pointed out before, by a habit of not eating fats from childhood. Under these above conditions, to build up strength, malt preparations are often useful; but to re-establish the digestion of fats, fats must be fed at each meal, not allowing an opportunity to pass in which they are not eaten. In this way their digestion will become re-established. From the foregoing will also be seen many reasons for the subcutaneous injections of oils for the tubercular patient, since conditions exist in the alimentary canal unfavorable to their assimilation.

Iodine as a remedy for tuberculosis has long been used in certain cases. It is particularly indicated in scrofulous patients. It is seldom that a patient can take it internally in doses sufficiently large to obtain the desired result, as it produces great gastric disturbance and has to be discontinued. I often use it (in certain cases only) in combination of a 6 per cent. solution with cocoanut oil for massage of the chest.

To apply this preparation, as in the use of all external medication, the best effect will be obtained by the use of proper massage. The patient should be in a warm room, stripped to the loins and seated on a high stool, while the operator, usually the nurse or a member of the family, who should be instructed, applies the preparation with massage in the following



manner: The patient is first made to raise his arms and join hands behind the neck or on top of the head. The preparation is then applied thoroughly over the chest in front and behind and on the neck well up under the chin. The operator, standing behind the patient, now advances his hands on each side of the patient's chest from behind forwards to the third and fourth segments of the sternum; and with firm and even pressure, the palms well lubricated with the oily preparation, are rubbed downward and backward, following the border of the lower line of the chest. The pressure is to increase as the operation goes on. After several movements of this kind the operator's fingers are pushed well under the lower border of the ribs, pulling them outwards, which may be repeated several times during the massage treatment. Now having employed general massage as above described we may, as the treatment advances, add to the movements, beating, kneading, chopping, sawing, vibration, etc.—all to be done very lightly. Vibration of the chest is useful only in a few cases, where the disease is not active, and may be performed by vibrating the hands on the chest.

Strychnine is a drug sometimes of great value in those cases where there is dilation of the pupil and general relaxation of the whole system. While it is not useful in all cases, and positively harmful in some, it will be found valuable in a few cases. With a few patients I employ strychnine and run the dose up to the physiological limit, using it in pill form, beginning with a 1-30 grain, or in some cases a 1-60 grain, four times daily, increasing one of the doses one pill of the same size at the end of five days, and at the end of the next five days increasing the second dose one pill of



the same size, and so on with the other doses until the limit of tolerance is reached. In doing this the patient must be instructed as to the powerful nature of the drug and of its physiological and toxicological effects, which are usually first noticed as a stiffness of the posterior muscles of the neck, often producing a feeling to throw the head back, or there may be a stiffness of the maxillary muscles, or there may be a stiffness of the posterior or anterior muscles of the thigh. Patients should be carefully instructed as to these symptoms and told to reduce the size of the dose should any of these symptoms arise, which will occur in some cases on even so small a dose as 1-30 grain four times daily. In other cases we may often run the dose up to 1-8 grain four times daily, and with great benefit. After we have got the dose up to 2-30 grain four times a day, we must use great caution in advancing further and advance in smaller doses, using pills of 1-60 grain for further increase of doses.

Digitalis I find useful where strychnine cannot be taken, and in some cases where there is swelling of the extremities. I use the tincture (fat free) digitalis, now prepared by several firms.

Hypophosphites deserve special mention in the therapy of tuberculosis, being of especial value in those tubercular patients who have phosphates in their urine. By increasing the amount of phosphates in the food, phosphaturea will disappear. The system will become accustomed to assimilating larger amounts of phosphates, which will go to nourish the system.

Stimulating carminatives combined with bitter tonics, as red cinchonæ, with cane syrup, aid the treatment in general by stimulating the appetite and nour-



ishing the patient; while the cane syrup, being a carbohydrate, is largely excreted by the lungs in the chemical changes which go to produce force and heat, and in the excretion of this carbon, aids in the development of the lungs. As a nutrient stimulant and tonic and for the relief of cough, I prescribe such mixtures in nearly all cases.

### Fever.

To maintain nutrition one of the primary symptoms which has to be met is fever; for as is well known, fever is the principal indicator of the condition and attitude of the disease. It points out whether the disease is advancing, remaining stationary or diminishing. When there is high fever, nutrition is wasted and our patient grows thin. Fever is the result of a physiological process of the body; and were tuberculosis a disease of a few days instead of months, it would not be of importance to keep down the fever for the sake of nutrition and vitality. From these facts it will be seen that in using drugs to lower temperature we should use something which will at the same time tend to eliminate toxic products.

Another symptom which makes its appearance early in the diseases is *nervousness*. This nervousness has much to do with the temperature of some tubercular patients; the remedy should quiet nervousness. On account of the marked anemia which accompanies and foreruns tuberculosis, the heart, necessarily is poorly nourished, and at the same time has an extra amount of work to perform; the remedy should, therefore, stimulate the heart; at the same time by its sedative action it should lessen cough. Therefore, to the usual anti-fever remedies should be



added diuretics and heart stimulants. With my patients in general I supply them with a combination powder according to the following formula to meet these conditions:

|                               |                      |
|-------------------------------|----------------------|
| ℞—Acetanilid .....            | 3 pounds.            |
| Caffeine .....                | $\frac{1}{4}$ pound. |
| Ipecac .....                  | $\frac{1}{4}$ pound. |
| Ammon. Carb. ....             | $\frac{1}{4}$ pound. |
| Pulv. sugar .....             | 6 pounds.            |
| Mix. Dose—Five to ten grains. |                      |

Patients are instructed to take this should they feel that they have taken the slightest cold, for we must stop a cold at once, that further lung tissue may not be unnecessarily destroyed. With many cases I have them take one or two doses before retiring at night to induce sleep and promote expectoration. All patients carry a package of the powder about with them to use in the emergency of taking cold, and to use during the day where there is much fever.

While the therapeutics of tuberculosis embraces nearly all of the materia medica, as to when and where to use remedies and when and what not to use, is where the good judgment of the experienced physician must be used. Experience teaches us that we must not give any drug which we do not know will benefit our patient, and that we must not overdose them; still we must ever be on the alert and make the best of every therapeutic measure which we know will be of benefit. In a chronic disease of this kind many small things are often neglected which, in the end, would have saved the life of the patient.

Hydrotherapeutic measures have gained favor in the hands of many. The wet pack applied to the chest



at night is sometimes beneficial; while in the home treatment and management of tuberculosis we must instruct our patients as to proper bathing, in that they do not harm themselves. In all hydrotherapeutic measures we should avoid chills. Frequent bathing is to be recommended, which is to be done with care, or chill is very apt to follow if the patient is in a weak condition. Taking a patient that is not far advanced in the disease, or one with an inherited tendency or of a phthisical habit of body, the bath to be recommended is a spray bath of short duration; only a second is time enough, the water being turned on and off instantly, and at a temperature as cold as can be borne. The idea is to give the body a shock, which is characterized by great re-action, bringing the blood to the surface, causing a ruddy glow. This kind of bath tends to fortify the system and builds up its resistance against taking cold. In addition, the ordinary tub bath should be taken twice weekly. When the patient in hand is weak such baths cannot be taken without causing a chill, and, therefore, doing harm. Now in these weak cases great caution must be exercised, and a warm sponge bath is often all that can be recommended, the patient's body being exposed only partly at a time, after which they should be thoroughly rubbed with cocoanut oil. Oiling the skin protects the patient from taking cold, and some of the oil is probably absorbed to nourish the body.

While subcutaneous injections of oil form the most valuable part of the treatment of tuberculosis, with this treatment should be added all that has been found useful to combat the disease, and I only record the balance of the treatment as mere suggestions to aid in the rapid cure of the patient. The three great rem-



edies for the cure of tuberculosis are: First, subcutaneous injections of oil; second, diet; and, third, rest, to which could be added a fourth—outdoor camp life.

### **Rest.**

The fevered patient should rest in bed, either in a well-ventilated house, or better, in a tent out doors all the time.

### **Outdoor Tent Life.**

Next in importance I place outdoor tent life. I was one of the first to advocate tent colonies for tubercular invalids, and an experience with many cases teaches me that no house can take the place of a tent.

Thirty-five years ago it was the custom of physicians to send their patients with pulmonary tuberculosis to Northern Minnesota; the pendulum swung in the opposite direction and patients were sent to the West and Southwest, and there is no doubt as to the value of these sections, being dry, with plenty of sunshine, low atmospheric pressure, warm days and cold nights. But I think that the pendulum is again swinging to the Northwest because of the greater mental hygiene which is to be enjoyed, where we have green grass instead of sand plains, an occasional rain to purify the air instead of sand-storms, a little cloudy weather to vary the monotony of constant sunshine; where growing forests of extreme beauty and grandeur cover a great part of this favored section with its spring-fed lakes and streams, affording good fishing, rowing, and change of scenery, and an incentive to keep out in the sunshine. A camp in the North woods affords so many things to occupy the mind that one can scarce find time to think of his condition of health.



It has been argued with good judgment that the consumptive patient should not exercise enough to fatigue himself, which is very little, but in fishing you have an occupation of a pleasurable nature without too much activity. If one will study the weather charts and maps he will see that there is a section of Northern Wisconsin where atmospheric pressure is light and, therefore, stimulating. This is the light-air belt, and here the air is particularly fresh and full of ozone. Lake Superior purifies the air from the north and Lake Michigan from the east, while great forests to the west, south and all around laden the air with balsam fragrance. Then, too, the sun has a very powerful chemical effect and produces tan very rapidly, thus promoting activity of the blood cells and increasing their assimilative powers. Here I have located my outdoor summer camp for invalids, and results are proving satisfactory.



## CHAPTER XVII.

### A DEMONSTRATION OF THE CURE OF CONSUMPTION WITH SUBCUTANEOUS INJECTIONS OF OIL.

We shall now demonstrate the correctness of the theories which we have here advanced by reporting the cases which have been under treatment with the subcutaneous injections of oil.

Case I. The first case which I treated was Mr. B. C., Chicago, age 22, family history negative, normal weight 140 pounds, weight at the beginning of treatment 124 pounds. He had had pulmonary tuberculosis for two years previous to this date and at the time treatment was commenced this patient presented a marked depression of the chest on the right side, beneath which was a large cavity in the lung. The patient was very weak and short of breath and raised a large amount of mucous, which contained tubercle bacilli. His temperature was 101 at 2:30 in the afternoon. He was growing weaker and was considered a very unfavorable case to treat.

Treatment was commenced April 12 with the injections of oil subcutaneously, and the usual internal treatments which we have described. At the end of three weeks the temperature of our patient had gradually returned to normal and remained there and his weight had increased thirteen pounds. This patient was treated for six months daily, except Sunday, with one ounce injections of oil subcutaneously. During the above period all of the symptoms of the disease disap-



peared, the cavity having healed and filled with tissue so that no cavity remained. His weight increased to 194 pounds, making a total gain in weight of 64 pounds.

Case IV. Mr. F. S., Phillips, Wis., August, 1905. This gentleman had been growing weaker and thinner for several months before I saw him. At the time he presented himself his pupils were widely dilated, and as he expressed it he "was all in and hardly able to walk." He had a depression over the right chest at about the third or fourth rib, underneath which were moist rales. The patient coughed and raised considerable mucous early in the morning and the sputum contained tubercle bacilli. There was the usual rise of temperature in the afternoon with a marked hectic flush. This patient was treated about one month and gained fourteen pounds in weight and all of the symptoms of the disease disappeared. He assimilated fats and oils well from the intestine so that it was not necessary to continue the injections. He has since believed in eating a good supply of fats and consequently has remained well.

Case V. Mr. F. B., Chicago, had been a patient for some two or three years. During that time he had a mild tubercular affection of the lungs which responded to out-door-tent life and a liberal diet of fats, butter and oil. This patient, however, was irregular in his eating habits and at times would resume his tubercular habit of eating (by which I mean he would not eat a sufficient quantity of fats and oils, and if eaten would not assimilate them). While I was out of the city for about a year, making a study of the various climates of the country, this patient contracted what he termed a cold, from which he was unable to recover, and which he had doctored for some six months. For this he



blamed me, saying that I was the only one who understood his colds and consequently no one had been able to cure him. The facts were these: This patient had a small cavity in one lung a little larger than a hickory nut, afternoon temperature 101, cough with the raising of mucous, especially abundant in the morning. The sputum contained tubercle bacilli.

Our patient stated that he had been taking oil and butter in liberal quantities, as I had instructed him some years previous, but that he was gradually losing in weight. Friends who knew this patient were anxious and did not expect him to live but a short time. Under the treatment with subcutaneous injections of oil he responded immediately, and after seven weeks' treatment was able to discontinue the same. All of the symptoms of the disease had disappeared, the cavity had healed, and he had gained some twelve pounds in weight. He has been married since and remains well. This was three years ago.

Case VI. Mr. E. P., Park Falls, Wis. While on his way to the Southwest, because of his health, he stopped off to consult me and I persuaded him to stay and take the treatment. Diagnosis, pulmonary tuberculosis. His temperature afternoons was up to 101, he coughed considerably, and raised a large amount of mucous. He was weak, had night sweats, and had gradually lost in weight. Treatment with one ounce injections of oil subcutaneously were given. You can imagine how pleased a patient would be who had been watching his weight decrease, to now watch it increase. He made a gain of fifteen and one-half pounds in one month's treatment and all of the symptoms of the disease disappeared. He established the habit of eating and assimilating fats very quickly, and consequently



the tuberculosis and tubercular habits were cured. He has since remained well, a period of two years, and is working at his old occupation.

Case VII. The following case which I present is rather remarkable because of the advanced and unfavorable condition of the disease at the time treatment was commenced, and because of the disappearance of all tubercular symptoms and the great gain in weight.

Mr. W. L. G., Chicago, age 57, family history negative, with the exception of a niece who died of tuberculosis. The patient's history is as follows: When a young man 26 years of age, he was told by several prominent physicians that his lungs were affected and that it was not likely that he could live in this climate for any length of time, and he was advised then to change to another climate. He did not change, however, but he did change his occupation to one which kept him out of doors, and he improved in health. For a number of years previous to the treatment Mr. G. was troubled considerably all of the time with a cough, which he termed chronic bronchitis. This patient is of an athletic build, about six feet tall, broad chested, and weighed at that time about 200 pounds. He was a man who lived well, choosing nutritious food, and this accounts for his not running down, or the disease advancing at that time. Still this patient did not assimilate enough nutrition to overcome the chronic cough with expectoration of mucous, though he did assimilate sufficient nutrition to prevent the disease from becoming active. Some three years previous to the treatment of this patient with subcutaneous injections of oil I examined him and found a small cavity about the size of an English walnut in the front



medium part of the right lung. There were some moist rales to be heard about this cavity. Owing to the good constitution and otherwise good condition of the patient at that time and as he felt comparatively well, and was without fever, I advised a diet composed of a good quantity of fat, at least one-fourth pound of butter daily, and a tablespoonful of olive oil twice daily. Under the above treatment the patient improved greatly and the cough almost entirely disappeared, and his weight increased to 212 pounds, more than he had ever weighed up to that time. As stated before, I was out of the city for about a year, and during this time the patient was not feeling well, and he consulted a physician who advised him that his trouble was not so much in his lungs as in his stomach and liver, and that for his liver's sake they would bombard it and that he must not eat fats or oils. They certainly did bombard his liver by withdrawing fats and oils, for withdrawing fats and oils can do nothing else but bombard a liver. It will starve it to death in one accustomed to fats in his diet, and such withdrawals of fats and oils from the diet of a fleshy person are very apt to be followed by some liver trouble, especially gall stones, so that the bombardment of the liver in this way is misdirected. Not only the defensive powers of the liver are lessened, but the defensive powers of the whole system become bankrupt. At this time I had returned to the city and was consulted by the patient June 14, 1906. Knowing the heretofore good constitution of the patient, and his great recuperative powers, I again advised the diet of butter, fats and oils as previously. His temperature at this time ranged about 101 afternoons. He had a very poor appetite, and insisted that his sickness was due to his



stomach and liver, though he was coughing and raising a large amount of mucous. The cavity of the lung had also increased in size. He was continued on the diet with a large amount of fat and oil until July 16 (about one month), though he continued to grow weaker and his fever higher. His symptoms now were very acute and he was losing rapidly. Microscopical examination showed shreds of lung tissue and numerous tubercle bacilli. His temperature was 102 both night and morning, and his weight at this time was 160 pounds. The strength and will power of the patient were sufficient to keep him up and about, but we advised him to go to bed and stay there, and we commenced the subcutaneous injections of oil. The patient continued to grow worse, and to grow thinner, and I estimate that this patient lost twenty or thirty pounds more in weight. It seemed to me a shame to pester this man, this friend of mine, with the subcutaneous injections of oil. I almost dreaded to call on him, thinking that because of the acuteness of the disease, the large amount of lung tissue destroyed, (cavity in lung had now increased to a size larger than a base ball), that it was useless and that the injections were only adding to his misery. But our patient never complained. One ounce injections of oil subcutaneously were given daily. At the end of the third week the patient commenced to improve, and he gained steadily, and at the end of the fifth week the temperature was normal, and he had gained greatly in strength and flesh. Our patient again weighed 160 pounds. The patient continued under the treatment with daily injections of oil (though he was able to resume his occupation at this time), and a liberal diet of fats and oils which he was able to assimilate and take with relish.



The lesson had been taught to him, though rather severely, that his trouble had been due to a lack of assimilation of fats and oils. This patient continued under the treatment for six months, with a steady gain in weight, at the end of which time he weighed 233 pounds. His gain therefore was about 100 pounds, and there were at this time no symptoms of the disease. He stopped treatment, saying that he was well. The patient has remained well since with the exception of an occasional cold, a "grip," at which time we would resume the treatment for a short period. I am convinced that had our patient remained under the treatment for three months longer, so as to be sure that his lungs were perfectly healed, he would have been in such condition that colds would not have affected his lungs. Further I wish to state that the cavity which existed has been healed and filled with tissue, and that his lungs and chest have developed so that there is no lack of lung tissue, and he is not distressed from short breathing, nor is there any other symptom of the disease.

Case XIV. Mrs. R. F., Chicago, family history negative. Patient had pneumonia five years ago, which left her with so-called chronic bronchitis and asthma. Her weight at the beginning of treatment was 101 pounds, normal weight being 102 pounds. Mrs. F. was treated with subcutaneous injections of oil for sixteen weeks, making a gradual gain in weight up to 110 pounds, at which time she seemed free from all symptoms of her former trouble. During the summer she continued to gain without the treatments and weighed 118 pounds the following fall. She was treated some during the winter, owing to a severe "cold" con-



tracted. Her weight has remained the same and she has been free from asthma and cough.

Case XV. Our office girl weighed 114 pounds. She was treated six times and gained six pounds. I mention this to show the increase in weight and nutrition when the treatment is given to one who is not suffering from the disease, but a probable condidate, as she abhors fats and oils, and consequently is poorly nourished.

Case XVII. Mr. E. L., Chicago. Diagnosis, chronic tuberculosis. Temperature at 2:30 ranged from 99 1-5 to 100 2-5. He was treated with subcutaneous injections of oil for eight weeks. He made a gain of five pounds in weight and all symptoms of the disease disappeared. This was not a desirable case to treat, owing to his alcohol habit, though he is remaining well.

Case XVIII. Dr. F. K. R. had been operated upon some years ago for tubercular glands of the neck. At the time he came for treatment he had a slight rise of temperature afternoons. Weight June 13, the time we commenced the injections, 133 pounds, at which weight the doctor had been stationary for years, though he had tried to increase his weight by every possible means of diet. He was treated seven weeks and made a gradual improvement in health and physical strength, and increased in weight to 139½ pounds. At this time I left the city for my summer camp for five weeks. As he was unable to go with me I advised him to take large quantities of butter, oil and fats in his diet, which he did. Upon my return he informed me that he had used every possible means to increase his weight, but it was evident that he had not yet formed the habit of assimilating fats, for his weight had remained about stationary, being 138½ pounds. We again commenced



the treatment with subcutaneous injections of oil, treating him every other day, and irregularly for two months. At the end of this time he had gradually gained to 145 pounds. It is evident that he is now assimilating the fats and oils for he has since gained to 150 pounds, and remains in perfect physical health.

Case XX. A. L. F. Diagnosis, acute tuberculosis. He had pneumonia one year ago, which left him with a chronic cough, and this cough had been growing gradually worse. The diagnosis was made by his attending physician as tuberculosis, and he consulted me in regard to treatment. The symptoms at this time were, cough during the night and day, but more particularly in the morning, the raising of considerable mucous, and a temperature of 101 at 2:30 p. m. He was very weak but working. Normal weight had been as high as 187 pounds, but for the past year had weighed about 150 pounds. When treatment was begun his weight was 143 pounds. This patient was treated for six weeks with subcutaneous injections of oil. He made a gain of five pounds in weight. All symptoms of the disease disappeared. The habit of assimilating oils and fats was formed. These fats he is now taking in liberal quantities in his diet and he remains well.

Case XXI. Mr. C. L., Chicago, Norwegian, age 49, married, family history negative. When treatment was commenced his weight was 153 pounds, normal weight being 153 pounds. He had been troubled with a chronic cough for twenty years. All of this time he had raised some mucous, and very frequently of late years had hemorrhages from the lungs. He had hemorrhages daily for about two weeks previous to the treatment. His cough was very severe. Diagnosis,



chronic fibrous tuberculosis. This patient was treated for twelve weeks daily except Sundays with one ounce injections of oil, and the usual diet. He made a gradual gain in weight of twelve pounds and his cough stopped. There has been no hemorrhage since the second week's treatment. He remains well without further treatment.

Case XXII. Master R. R., age 13. Diagnosis, acute tuberculosis. This patient had moist rales over the entire anterior surface of both lungs. A diagnosis of tuberculosis was made by the family physician and advice was given that our patient should change climates, and his father was informed that the boy would probably not live more than a few months. I saw the boy at this time and I do not believe that he would have lived that long under any change of climate or under any other treatment than the subcutaneous injections of oil. Examination of sputum showed numerous tubercle bacilli. Temperature 101 at 2:30. Weight 81 pounds. This patient gained thirteen pounds in weight and grew one and one-half inches taller under three months' treatment. All symptoms of the disease disappeared, and our patient felt in better health than ever before during his life. We continued the injections for six months for the reason that the tubercular habit of not assimilating oils from his diet was not corrected. When he assimilated the oil from his diet we stopped the injections. We know that our patient will remain well providing that he always continues his habit of eating and assimilating oils and fats.

Case XXIV. Mr. R. J. G., Chicago, age 28. He had pneumonia twice ten years ago, from which time he dates a chronic cough with raising of mucous.



Diagnosis, chronic pulmonary tuberculosis of a favorable condition to treat. Diagnosis confirmed by microscopical findings in the sputum. When beginning treatment his temperature was 98, pulse 92, weight 117 pounds, his normal weight being 128 pounds. This patient was treated for one month daily excepting Sunday, with one ounce injections of oil and a liberal diet of fats. He made a gain of six pounds and seemed in good health, and has since remained well.

With many of these cases it requires constant training for several months to a diet of fats before these fats will be assimilated, and until then we cannot discontinue the treatment with subcutaneous injections of oil with safety. As to whether these patients remain well and free from any symptoms of tuberculosis all depends upon their maintaining this habit of assimilating oils, by not letting a meal go by in which a liberal quantity of fat in some form is eaten.

All of the above cases have been free from the symptoms of the disease tuberculosis since they have stopped treatment, the time varying from four years to three months in the latter cases.

Case XXV. Mr. E. E. D., of Chile, Wis. I report this case in full because it shows the wonderful curative action of the injections of oil, and while this case died of pneumonia, he was cured of the tubercular condition of the lungs. It is one of the saddest experiences I have had in the practice of medicine, for he had no symptoms of tuberculosis at the time he contracted pneumonia and it seemed that he could go home a cured man. It was not a tubercular pneumonia that he contracted, but a typical acute pneumonia.

The following is a copy of my chart history of the case:



## TUBERCULOSIS CASE NO. 25

## CLINICAL RECORD

DATE—Sept. 9, 1907

NAME—E. J. D., Chile, Wis.

| Date.   | Hour of Injection. | Temperature.      | Pulse. | Respiration.      | Temperature at 2.30. | MEDICINE.  | NOURISHMENT. | REMARKS.  | WEIGHT.           |
|---------|--------------------|-------------------|--------|-------------------|----------------------|--|--------------|---|-------------------|
| Sept. 9 | 12.00              | 100 $\frac{1}{2}$ | 112    | 24                | ....                 | 1 Oz. Injection oil.                                 | Usual        | Patient very weak and gets out of breath walking one block. | 147 $\frac{1}{2}$ |
| " 10    | 11.00              | 98                | "      | "                 | 100                  | "  | "            |   | 149               |
| " 11    | "                  | 98 $\frac{3}{4}$  | "      | "                 | 99 $\frac{1}{2}$     | "  | "            |   | 151               |
| " 12    | "                  | N                 | "      | "                 | 99 $\frac{1}{2}$     | "  | "            |   | 150               |
| " 13    | "                  | "                 | "      | "                 | 99 $\frac{1}{2}$     | "  | "            |   | 151               |
| " 14    | "                  | "                 | "      | "                 | 99 $\frac{1}{2}$     | "  | "            |   | 152               |
| " 15    | "                  | "                 | "      | "                 | 100                  | "  | "            |   | 151 $\frac{1}{2}$ |
| " 16    | "                  | "                 | "      | "                 | 100                  | "  | "            |   | 154               |
| " 17    | "                  | "                 | "      | "                 | 99 $\frac{3}{4}$     | "  | "            |   | 154               |
| " 18    | "                  | "                 | "      | "                 | 99 $\frac{3}{4}$     | "  | "            |   | 154               |
| " 19    | "                  | "                 | "      | "                 | 99                   | "  | "            |   | 154               |
| " 20    | "                  | "                 | "      | "                 | 99                   | "  | "            |   | 154               |
| " 21    | "                  | "                 | "      | "                 | 100                  | "  | "            |   | 155               |
| " 22    | "                  | "                 | "      | "                 | N                    | "  | "            | Coughs some but raises less                                 | 155 $\frac{1}{2}$ |
| " 23    | 4.20               | 99 $\frac{1}{2}$  | "      | "                 | 99                   | "  | "            |   | 156               |
| " 24    | "                  | 99 $\frac{1}{2}$  | "      | "                 | N                    | "  | "            |   | 155 $\frac{1}{2}$ |
| " 25    | "                  | 99 $\frac{1}{2}$  | "      | "                 | 99 $\frac{1}{2}$     | "  | "            |   | 156 $\frac{1}{2}$ |
| " 26    | "                  | 99 $\frac{1}{2}$  | "      | "                 | 100                  | "  | "            |   | 157 $\frac{1}{2}$ |
| " 27    | "                  | 99 $\frac{1}{2}$  | "      | "                 | 99 $\frac{1}{2}$     | "  | "            |   | 156               |
| " 28    | "                  | "                 | "      | "                 | 100                  | "  | "            | Vomited last night, diarrhoea.                              | 157               |
| " 30    | "                  | "                 | "      | "                 | 99 $\frac{1}{2}$     | "  | "            |   | 157 $\frac{1}{2}$ |
| Oct. 1  | "                  | 100               | "      | "                 | 99 $\frac{1}{2}$     | "  | "            |   | 156               |
| " 2     | "                  | 100               | "      | "                 | 99 $\frac{1}{2}$     | "  | "            |   | 157 $\frac{1}{2}$ |
| " 3     | "                  | 100               | "      | "                 | 100                  | "  | "            |   | 157 $\frac{1}{2}$ |
| " 4     | "                  | "                 | "      | "                 | N                    | "  | "            |   | 157 $\frac{1}{2}$ |
| " 5     | "                  | N                 | 103    | N                 | 99 $\frac{1}{2}$     | "  | "            |   | 158               |
| " 7     | "                  | 99 $\frac{1}{2}$  | "      | "                 | 99                   | "  | "            | Feeling strong and fine.                                    | 158               |
| " 8     | "                  | 99 $\frac{1}{2}$  | "      | "                 | 99                   | "  | "            |   | 157 $\frac{1}{2}$ |
| " 9     | "                  | 99 $\frac{1}{2}$  | "      | "                 | N                    | "  | "            |   | 158               |
| " 10    | "                  | 99 $\frac{1}{2}$  | "      | "                 | "                    | "  | "            |   | 158               |
| " 11    | 10.30              | N                 | "      | "                 | "                    | "  | "            |   | 159               |
| " 12    | "                  | "                 | "      | "                 | 99 $\frac{1}{2}$     | "  | "            |   | 160               |
| " 14    | "                  | "                 | "      | "                 | "                    | "  | "            | Appetite good vomited last night.                           | 159 $\frac{1}{2}$ |
| " 15    | "                  | "                 | "      | "                 | "                    | "  | "            |   | 161               |
| " 16    | "                  | "                 | "      | "                 | "                    | "  | "            |   | 161               |
| " 17    | "                  | "                 | "      | "                 | "                    | "  | "            |   | 161               |
| " 18    | "                  | "                 | "      | "                 | "                    | "  | "            |   | 160               |
| " 19    | "                  | "                 | "      | "                 | "                    | "  | "            |   | 162               |
| " 21    | "                  | "                 | 102    | N                 | 98 $\frac{1}{2}$     | "  | "            | Feeling fine.   | 161               |
| " 22    | "                  | "                 | "      | "                 | 99                   | "  | "            |   | 162               |
| " 23    | "                  | "                 | "      | "                 | 98 $\frac{1}{2}$     | "  | "            |   | 162 $\frac{1}{2}$ |
| " 24    | "                  | "                 | "      | "                 | 99                   | "  | "            |   | 162 $\frac{1}{2}$ |
| " 25    | "                  | "                 | "      | "                 | 99                   | "  | "            |   | 162 $\frac{1}{2}$ |
| " 26    | "                  | "                 | "      | "                 | "                    | "  | "            |   | 163               |
| " 28    | "                  | "                 | "      | "                 | N                    | "  | "            | Cold in head.   | 163 $\frac{1}{2}$ |
| " 29    | "                  | "                 | "      | "                 | "                    | "  | "            |   | 163               |
| " 30    | "                  | "                 | "      | "                 | 99                   | "  | "            |   | 164               |
| " 31    | "                  | "                 | "      | "                 | 99 $\frac{1}{2}$     | "  | "            | Cold in head and throat.                                    | 164 $\frac{1}{2}$ |
| Nov. 1  | "                  | "                 | "      | "                 | 100                  | "  | "            |   | 163               |
| " 2     | "                  | "                 | "      | "                 | N                    | 1 Oz. Injection of oil and stimulating cur-munative. | "            | Very bad cold and bodyache                                  | 165               |
| " 3     | "                  | "                 | "      | "                 | 99 $\frac{1}{2}$     | "  | "            | Raises about twice as much as usual.                        | 165 $\frac{1}{2}$ |
| " 4     | "                  | 100 $\frac{1}{2}$ | 100    | 100 $\frac{1}{2}$ | 99 $\frac{1}{2}$     | "  | "            |   | 165 $\frac{1}{2}$ |
| " 5     | "                  | 99 $\frac{1}{2}$  | "      | "                 | 99 $\frac{1}{2}$     | "  | "            |   | 165 $\frac{1}{2}$ |
| " 6     | "                  | 99 $\frac{1}{2}$  | "      | "                 | 98 $\frac{1}{2}$     | "  | "            |   | 165 $\frac{1}{2}$ |
| " 7     | "                  | N                 | "      | "                 | N                    | "  | "            | Walks home after treat-                                     | 165 $\frac{1}{2}$ |
| " 8     | "                  | 100               | "      | "                 | "                    | "  | "            |   |                   |
| " 9     | "                  | "                 | "      | "                 | "                    | "  | "            |   |                   |

N in these tables signifies normal.



| Date.   | Hour of Injection. | Temperature. | Pulse. | Respiration. | Temperature at 2.30. | MEDICINE.               | NOURISHMENT. | REMARKS.        | WEIGHT. |
|---------|--------------------|--------------|--------|--------------|----------------------|-------------------------|--------------|-----------------|---------|
| Nov. 11 | "                  | N            |        | N            | N                    | 1 Oz. Injection of oil. | Usual        | ment, dist-     | 166½    |
| " 12    | "                  | "            |        | "            | "                    | "                       | "            | ance about 15   | 166     |
| " 13    | "                  | "            |        | "            | "                    | "                       | "            | blocks.         | 167½    |
| " 14    | "                  | "            |        | "            | "                    | "                       | "            | Vomited and     | 166     |
| " 15    | "                  | "            |        | "            | "                    | "                       | "            | sick all after- | 165½    |
| " 16    | "                  | "            |        | "            | 99                   | "                       | "            | noon.           | 166     |
| " 18    | "                  | "            |        | "            | N                    | "                       | "            | Feels fine but  | 166½    |
| " 19    | "                  | "            |        | "            | "                    | "                       | "            | taken little    | 166     |
| " 20    | "                  | "            |        | "            | "                    | "                       | "            | cold.           | 166½    |
| " 21    | "                  | "            |        | "            | "                    | "                       | "            | Vomited sup-    | 165½    |
| " 22    | "                  | "            |        | "            | "                    | "                       | "            | per, Vomited    | 165     |
| " 23    | "                  | "            |        | "            | "                    | "                       | "            | breakfast and   | 166     |
|         |                    |              |        |              |                      |                         |              | supper.         |         |
| " 25    | "                  | "            |        | "            | "                    | "                       | "            |                 |         |
| " 26    | "                  | "            |        | "            | "                    | "                       | "            |                 |         |
| " 28    | "                  | "            |        | "            | "                    | "                       | "            |                 |         |
| " 29    | "                  | "            |        | "            | "                    | "                       | "            |                 |         |
| " 30    | "                  | "            |        | "            | "                    | "                       | "            |                 |         |
| Dec. 2  | "                  | "            |        | "            | "                    | "                       | "            | Out looking     | 167½    |
| " 3     | "                  | "            |        | "            | "                    | "                       | "            | for a new       | 167½    |
| " 4     | "                  | "            |        | "            | "                    | "                       | "            | boarding        | 168½    |
| " 5     | "                  | "            |        | "            | "                    | "                       | "            | place.          | 168½    |
| " 6     | "                  | "            |        | "            | "                    | "                       | "            |                 | 170     |
| " 7     | "                  | "            |        | "            | "                    | "                       | "            |                 | 170     |
| " 9     | "                  | "            |        | "            | "                    | "                       | "            | Went to the-    | 171     |
| " 10    | "                  | "            |        | "            | "                    | "                       | "            | ater and up     | 172     |
| " 11    | "                  | "            |        | "            | "                    | "                       | "            | late two        | 170     |
| " 12    | "                  | "            |        | "            | "                    | "                       | "            | nights which    | 171½    |
| " 13    | "                  | "            |        | "            | "                    | "                       | "            | gave slight     | 170½    |
| " 14    | "                  | "            |        | "            | "                    | "                       | "            | set back.       |         |
| " 16    | "                  | "            |        | "            | "                    | "                       | "            |                 | 171½    |
| " 17    | "                  | "            |        | "            | "                    | "                       | "            |                 | 171½    |
| " 18    | "                  | "            |        | "            | "                    | "                       | "            |                 | 171½    |
| " 19    | "                  | "            |        | "            | "                    | "                       | "            |                 | 171½    |
| " 20    | "                  | "            |        | "            | "                    | "                       | "            |                 | 171½    |
| " 21    | "                  | "            |        | "            | "                    | "                       | "            | Belly ache      | 171½    |
|         |                    |              |        |              |                      |                         |              | from eating     |         |
| " 23    | "                  | "            |        | "            | "                    | "                       | "            | cold storage    | 170½    |
| " 24    | "                  | "            |        | "            | "                    | "                       | "            | eggs.           | 169½    |
| " 26    | "                  | "            |        | "            | "                    | "                       | "            | "               | 169½    |
| " 27    | "                  | "            |        | "            | "                    | "                       | "            | "               | 169½    |
| " 28    | "                  | "            |        | "            | "                    | "                       | "            | "               | 170½    |
| " 30    | "                  | "            | 84     | "            | "                    | "                       | "            | "               | 169½    |
| " 31    | "                  | "            |        | "            | "                    | "                       | "            | "               | 171½    |
| Jan. 2  | "                  | "            |        | "            | "                    | "                       | "            | "               | 171     |
| " 3     | "                  | "            |        | "            | "                    | "                       | "            | "               | 171½    |
| " 4     | "                  | "            |        | "            | "                    | "                       | "            | "               | 173     |
| " 6     | "                  | "            |        | "            | 103                  | "                       | "            | Patient has     | 172½    |
| " 7     | "                  | 99½          |        | "            | 101½                 | "                       | "            | the grip.       | 173     |
| " 8     | "                  | N            |        | "            | 99                   | "                       | "            | "               | 171½    |
| " 9     | "                  | "            |        | "            | 99                   | "                       | "            | "               | 170½    |
| " 10    | "                  | "            |        | "            | 99                   | "                       | "            | "               | 170½    |
| " 11    | "                  | "            |        | "            | "                    | "                       | "            | "               | 169     |
| " 13    | "                  | "            |        | "            | "                    | "                       | "            | Says belly      | 168½    |
| " 14    | "                  | "            |        | "            | 99                   | "                       | "            | feels as if a   | 168½    |
| " 15    | "                  | "            |        | "            | 99½                  | "                       | "            | charge of dy-   |         |
| " 16    | "                  | "            |        | "            | 99½                  | "                       | "            | namite had      | 168     |
| " 17    | "                  | 100          |        | "            | 99½                  | "                       | "            | exploded in-    | 168½    |
|         |                    |              |        |              |                      |                         |              | side of him.    |         |

Patient taken with pneumonia and died in 48 hours.



Cases of Pulmonary Tuberculosis Treated with Subcutaneous Injections of oil who Improved Under Treatment, But Did Not Continue The Treatments for a Sufficient Period to Effect Complete Cures.

Table I. History of Cases Treated. For Results see Table II.

| Case No. | Sex. | Age | Condition                                  | Involvement |         | Duration of Disease | General Condition | Digestion           | Range of Pulse | Max. Temp. for Day | T. B. | Complications   |
|----------|------|-----|--|-------------|---------|---------------------|-------------------|---------------------|----------------|--------------------|-------|---|
|          |      |     |  | Amt.        | Side.   |                     |                   |                     |                |                    |       |   |
| II       | M    | 26  | { Acute Tb. of Lungs Moderately Advanced } | Entire      | both    | 3 weeks             | Favorable         | Impaired            | 90-110         | 102                | +     | None  |
| III      | M    | 22  | { Advanced Cavity Far }                    | II          | R       | 14 Mos.             | Unfavorable       | Impaired            | 84-105         | 101                | +     | { Severe Bright's Disease }   |
| VIII     | F    | 25  | { Advanced Chronic Fibrous }               | II          | R       | 12 Mos.             | Favorable         | Not Impaired        | 76-90          | Th.                | +     | Inhaled Cigaretts   |
| X        | F    | 29  | { Advanced Chronic Fibrous }               | III         | R & L   | 3 yrs.              | Unfavorable       | { Much Impaired }   | 96-119         | 102                | -     | None  |
| XI       | F    | 28  | { Acute Tb. of Lungs }                     | III         | R. & L. | 1 Mo.               | Unfavorable       | Impaired            | 100-110        | 102                | +     | { Very Malignant Syphilis which Did not Respond Well to Treatment With Antisyphilis. None } |
| XII      | M    | 52  | Advanced                                   | III         | R. & L. | 6 Mos.              | Unfavorable       | Impaired            | 90-114         | 102                | +     | { Large Amount of Fibrous Tissue in Both Lungs }  |
| XVI      | M    | 24  | Fair                                       | III         | R. & L. | 3 wks.              | Unfavorable       | { Little Impaired } | 96             | 98                 | -     | Larynx Ulcerated  |
| XXII     | M    | 19  | { Advanced General Tb. }                   | II          | R       | { Since Childhood } | Unfavorable       | { Little Impaired } | 100-136        | 97                 | +     |   |

For results of treatment in these cases see Table II.

Explanations, +, tubercle bacilli present; —, tubercle bacilli absent; M, male; F, female.



From the demonstrated results in these cases, and the cases cured, it is probable that all of these cases would have recovered under continued treatment with the exceptions of Cases III and X; case III having a severe Bright's disease and case X being too far advanced.

Table II. Results of treatment of cases from table I.

| Case No. | Condition.                                      | Duration of Treatment. | Increase in Weight. | Habit of Digestion. | Cough    | Mucous   | T. B. | Lessons               | Temp.  |
|----------|---|------------------------|---------------------|---------------------|----------|----------|-------|-----------------------|--------|
| II       | No Symptoms                                     | 7 wks.                 | 5 pounds.           | Improved            | Improved | Stopped  | —     | { Apparently Healed } | tn.    |
| III      | { Lungs Improved }<br>{ Bright's Not Improved } | 3 mos.                 | 30 pounds           | Improved            | Improved | Improved | —     | { Much Improved }     | tn.    |
| VIII     | No Symptoms                                     | 1 mo.                  | 8 pounds            | Improved            | None     | Stopped  | —     | Improved              | tn.    |
| X        | { Some Improvement }                            | 1 mo.                  | 4 pounds            | Not Improved        | Same     | Same     | —     | Improved              | tn.    |
| XI       | Improved  | 10 wks.                | 11 pounds           | Improved            | Improved | Improved | —     | Improved              | tn.    |
| XII      | Improved  | 2 wks.                 | 5 pounds            | Not Improved        | Improved | Same     | —     | Improved              | tn.    |
| XVI      | Improved  | 3 wks.                 | 4½ pounds           | Improved            | Improved | Improved | +     | Improved              | 100    |
| XXIII    | Same  | 6 wks.                 | Same                | Improved            | Improved | Improved | +     | Improved              | 98 1-5 |

Explanation, tn., temperature normal.



We shall now report the three cases who died of the disease while still under treatment. You will agree with me that even in these advanced cases, the subcutaneous injections of oil have acted as a wonderful and actual specific benefit. This could be better realized by you if you had seen the cases as they were treated, seen the advanced condition of the disease, and the wonderful strides which they made toward health.

Case IX. Mr. M. G. M., Chicago. Diagnosis, chronic fibrous tuberculosis of several years' standing. Patient small; of poor development of chest and body. He was unable to expand his chest but very little with his best efforts, most of his breathing being diaphragmatic. This was due to the large deposits of fibrous tissue throughout the lungs. What a shame that this patient should become so far advanced with the disease, for he would have been a very favorable case to cure had he received any attention, or even proper advice early in the disease. For here his own system was continually working to heal the lung and still he did not have sufficient nutrition to entirely overcome the disease, and as the fire crept on the scars would form, and heal that part seared from the disease. This patient was not in such circumstances that he could stop work. He improved greatly under treatment but was taken with an acute pneumonia. They would not allow him to stay at his boarding house, and he was removed to the County Hospital. He recovered from the pneumonia but on account of lack of lung tissue it was not thought advisable to treat him further and he died a short time later.

The following case presented the most advanced



condition of chronic fibrous tuberculosis that I have ever treated or seen:

Case XIII. Mr. W. M., Chicago, March, 1907. Carpenter, age about 27. The patient coughed and raised some mucous. No temperature. When the chest of this patient was exposed and he made efforts of expansion no detection of breathing motion from the chest could be seen above the fifth rib. It was like looking at the chest of a dead man. Air could be heard coming in the lungs only beneath and below the shoulder blades. Pulse 108, weight 126 pounds. This patient was treated with one ounce injections of oil for nine weeks, and he made a gradual increase in weight up to 145 pounds. His strength increased greatly and his breathing was less laborious. The formation of mucous from his lungs stopped entirely as well as the cough. This patient's lungs were healed but there was so very little left of them that the heart had to work too hard to keep up the circulation for the aeration of the blood, and with the relaxation produced by the warm June days (warm days and nights are always bad for these cases and cold nights and cold days are the heart's best stimulant) his feet commenced to swell. This was June 10. No further treatments were given for, as stated before, the lungs had healed, but too late in the disease. He died at the end of the month, his heart being no longer able to carry on its great labor.

Case XIX. Mr. E. S., Chicago, age 31, family history negative. The duration of the disease to patient's knowledge was two years, during which time he had been at Phoenix, Arizona. He returned to Chicago to die, as advised by his physician there. Diagnosis, advanced fibrous tuberculosis. This patient could lie on



his left side only, because of shortness of breath and cough, and on this side there was a bed sore. Afternoon temperature 100. Normal weight 147 pounds; weight at beginning of treatment 127½ pounds. He had no appetite and could not be persuaded to eat. He lived on six cold storage eggs a day, which produced cramps and diarrhœa, but persuasion as to a suitable diet produced nothing but promises to do better. His limbs were swollen. A patient advanced to this degree was beyond any hope, but he desired treatment. He was treated one month with the subcutaneous injections of oil in doses varying from a drachm to an ounce, and during this time he improved so much in nutrition that the bed sore healed, and the swelling seemed to diminish some from his feet. He gained some five pounds in flesh, but taking cold there was not enough lung tissue left to aerate the blood and he died. It must be admitted, all things considered, that the subcutaneous injections of oil influenced the disease toward recovery. Such a case as this if taken earlier could certainly have been cured. If he had been treated by this method instead of going to Arizona two years previous, he would have been well and free from the disease.

### SUMMARY.

In summary then we may say, in view of the facts, that we have demonstrated the correctness of the theories here presented and that:

1. Subcutaneous injections of oil do cure consumption, and repair great tissue destruction of the lungs.
2. That the patient cured will remain well, providing that he continues the eating of fats. It is a good rule not to let a meal go by without taking fat



in some form, and by so doing keep up the habit of assimilating them from the intestine.

3. Since fats as a rule are not assimilated in sufficient quantities from the intestine of the consumptive patient, because the habit of assimilating fats has not been formed, owing to the patient's abhorrence of fats and oils, and because of the torpidity of the liver, the pancreas and all other tissues of the body, therefore, oils must be injected subcutaneously, and these injections must be kept up until the lesions are healed and the habit of assimilating fats and oils from the intestine is established.

4. To establish the habit of digesting fats and assimilating oils they must be eaten in large amounts and continuously, not allowing a meal to go by without taking them in liberal quantities. When first taken into the intestine very often oils break up into fatty acids and glycerine and are expelled, or they are not absorbed and pass away without any change. Consequently, when the habit of assimilating oils is once formed it should be maintained by their constant use, and since consumptive patients are very apt to relapse into their old habit of abhorring fats and oils, they must be impressed with the fact that in their condition it will be very easy for them to get out of the habit of assimilating fats and oils should they neglect to eat them, and in that case there may be a return of the disease.

5. When oils are injected they must be taken up, and be excreted principally by the lungs in the form of carbon, oil being a hydro-carbon. They therefore aid and produce lung development.

6. Life and vitality of the human being are dependent upon a sum of forces, principal of which is



the blood, which in turn is dependent upon nutrition to carry on the metabolism of the tissues. Oil is an affinity which when injected unites with the blood and supplies material for the formation of tissue, cell nutrition, and cell activity, and consequently builds up nutrition more rapidly than any other means. By the injections of oil the blood cells find for their growth or repair, or for the nourishment of other tissues that which they readily appropriate.

7. Subcutaneous injections of oil require very little energy upon the part of the body to convert the oil so injected into body heat, energy, life, and nutrition for tissue repair.

8. People who assimilate fats in sufficient quantities do not have consumption.

9. Oil destroys the activity of germs when they are placed in it almost immediately, and germs so placed in oil disappear as well.

10. Characteristic of tuberculosis and other inflammatory diseases of the lungs is the large epithelial cells swollen with fatty substance, and this precedes caseation, during which process the bacilli often disappear. If there is no fat eaten in our diet, or if this is not assimilated and the fat tissue of the body has been exhausted of its oil, then little or no oil can be gathered by these cells, and their contents is more serious and the destruction of the germ is less marked. Therefore, the subcutaneous injections of oil do supply the necessary material for the destruction of the germ of the disease, in just such a way and manner that it must be used for that purpose, since most all of the oil is excreted by the lungs, besides producing nutrition and cell activity. Oil is the greatest germicide which the body manufactures in its own laboratory, and is



the one which can be used for the successful treatment of this disease.

This chapter was published as advance sheets about one year ago. Since the above cases were reported a great number have been treated with similar results and in addition to the treatment of tuberculosis I have obtained results which prove that oil subcutaneously injected is nature's serum in the cure of all diseases, in the building of immunity from disease, and in the making of stamina and constitution.

June, 1909.

T. B. K.

**SOME OF THE AUTHOR'S CONTRIBUTIONS TO MEDICAL LITERATURE ON THE CURE OF CONSUMPTION WITH SUBCUTANEOUS INJECTIONS OF OIL.**

KEYES:—The Cure of Consumption by Feeding the Patient with Subcutaneous Injections of Oil and Its Digestion by the White Globules of the Blood—*Pacific Med. Jour.*, May, 1904; *Med. Brief*, June, 1904; *Maine Jour. Science*, June, 1904.

KEYES:—The Cure of Consumption with Subcutaneous Injections of Oil.—*Pacific Med. Jour.*, February, 1905; *Amer. J. Progressive Therapeutics*, July, 1906.

KEYES:—Mal-nutrition as a Means Furnishing the Soil for the Disease Tuberculosis—Fat Foods in Its Prevention and Cure, as pointed out by the History and Literature of All Centuries.—*Med. Brief*, August and September, 1906.

KEYES:—The Causes of Consumption Indicate the Use of Oils Injected Subcutaneously as a Cure for Consumption.—*Med. Brief*, October, 1906.

KEYES:—Biology Indicates the Use of Oil Injected



Subcutaneously as a Cure for Consumption.—*Med. Brief*, November, 1906.

KEYES:—Physiological Therapeutics Indicate the Use of Oils Injected Subcutaneously as a Cure for Consumption.—*Med. Brief*, December, 1906.

KEYES:—The Early Diagnosis and Symptoms of Consumption—Arguments Drawn Therefrom for the Subcutaneous Injections of Oil.—*Med. Brief*, January, 1907.

KEYES:—Fat the Germ Destroyer and Equalizer of the Body, with Especial Reference to Oils and Fats in the Prevention and Cure of Tuberculosis.—*Med. Brief*, February, 1905.

KEYES:—Lung Excretion as Related to Tuberculosis—The Body Heat and Force—Fat Foods in Their Maintenance for the Prevention of Tuberculosis.—*Med. Brief*, March, 1905.

KEYES:—Lung Development—The Lungs Both Give and Take.—*Med. Brief*, April, 1905.

KEYES:—Immunity from Tuberculosis, Its Production by Fat Foods and Outdoor Camp Life—Subcutaneous Injections of Oil in the Cure of Consumption.—*Pacific Med. Jour.*, July, 1904.

KEYES:—Some of the Physiological Uses and the Formation of the Adipose Tissue of the Body, and Its Relation and that of Fat Foods to the Prevention of Tuberculosis—The Absolute Cure of Tuberculosis by Subcutaneous Injections of Oil.—*Med. Brief*, September, 1904

KEYES:—The Habit of Not Eating Fats Leads to Their Non-Digestion, Mal-nutrition and Tuberculosis—Subcutaneous Injections of Oil.—*Pacific Med. Jour.*, September, 1904.

KEYES:—The Therapeutics of Tuberculosis Other



Than Subcutaneous Injections of Oil.—*Jour. Prog.*

KEYES:—The Dieting and Management of Tubercular Cases.—*Ibid.*

KEYES:—Proofs of the Curability of Pulmonary Tuberculosis with Subcutaneous Injections of Oil.—*The Medical Progress*, November, 1904.

KEYES:—The Cure and Prevention of Bovine Tuberculosis—Subcutaneous Injections of Oil.—*American Veterinary Review*, August, 1904, and *North British Agriculturist*, February, 1905

KEYES:—The Pathology of Consumption Indicates the Use of Oils Injected Subcutaneously as a Cure.—*The Antiseptic*, Madras, India, 1905.

KEYES:—The Cure of Consumption with Subcutaneous Injection of Oils.—*The Antiseptic*, Madras, India, December, 1906.

KEYES:—Cure That Hippocratic Face or That Flabby Fat, and You Will Possess the Vigor for Health and Revive the Fires of Life.—*The Medical Counselor*, March, 1909.

KEYES:—The Making of the Acme of Abundant Healthy Life Force of Man or Healthy Temperament.—*The Pacific Medical Journal*, May, 1909.

KEYES:—The Renewal of Life.—*Medico-Legal Society and Journal*, December, 1908.

KEYES:—The Production of Immunity From Tuberculosis.—*The Medical Counselor*, June, 1909.

### **SOME AIDS TO THE ABOVE TREATMENT.**

KEYES:—The Relation of Insanity to Tuberculosis: One of Nutrition.—*American International Congress of Tuberculosis*, New York, 1906; *Medico-Legal Journal*, New York, 1907.

KEYES:—Camp and Outdoor Life as an Aid to the



Permanent Cure of Tuberculosis.—*Amer. Congress of Tuberculosis*, 1906; *Medico-Legal Jour.*, New York, 1900.

KEYES:—Some Results of Camp and Outdoor Life in Northern Wisconsin.—*Amer. Congress of Tuberculosis*, 1901; *Medico-Legal Journal*.

KEYES:—The Koumiss and Milk Treatment of Consumption.—*The Tubercle*, 1900.

KEYES:—Evidence as to the Value of Tent Life for the Tubercular.—*Medical Brief*, 1906.

KEYES:—North Central Wisconsin as a Health Resort for the Thin and Anæmic.—*The Medical Progress*, May, 1907.

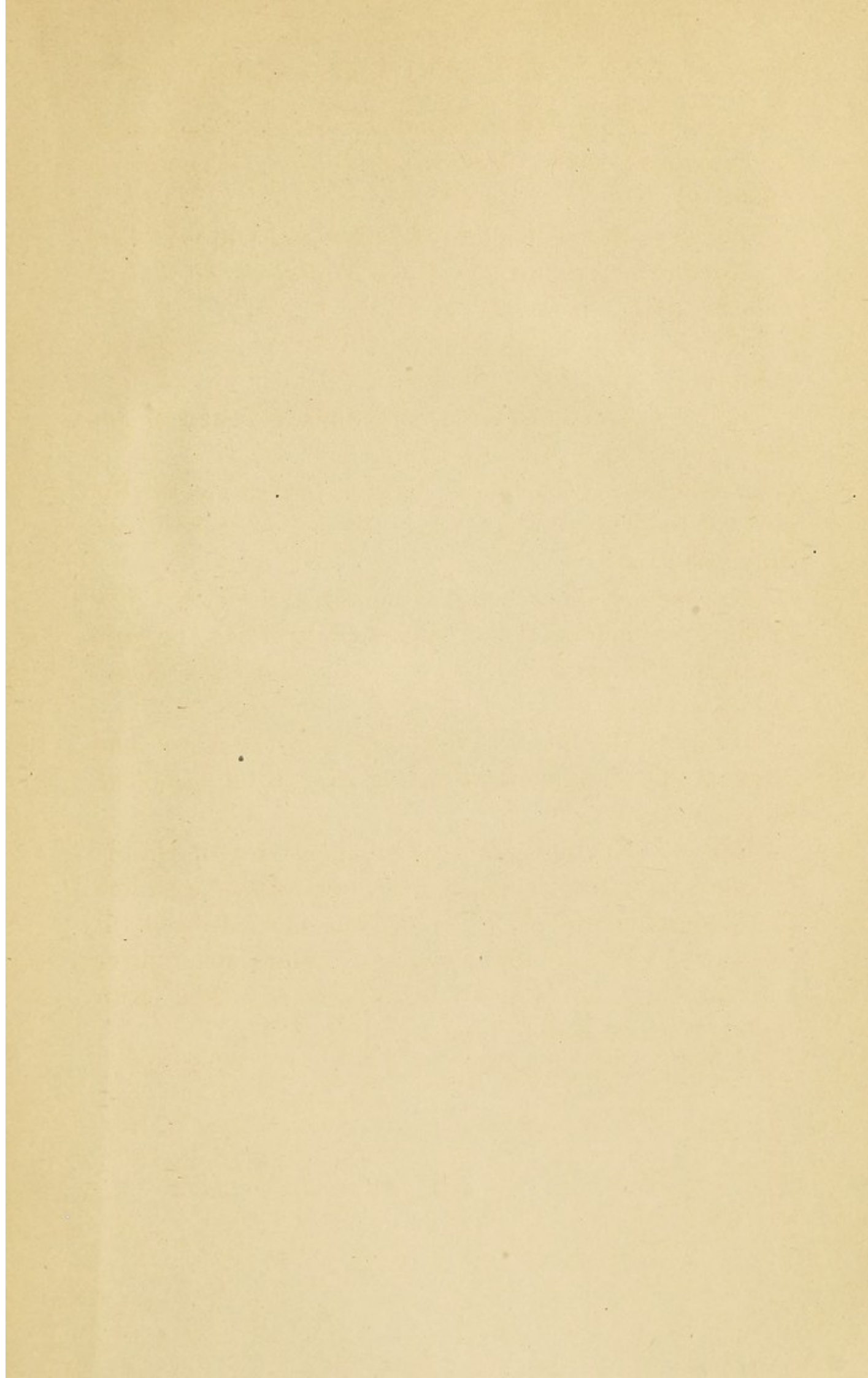
KEYES:—Medicines and Other Means which I Use in the Treatment of Tuberculosis Other Than the Subcutaneous Injections of Oils.—*Virginia Med. Semi-Monthly*, May, 1907.

KEYES:—Dieting and Cooking for the Cure and Prevention of Consumption.—*Pacific Med. Journal*, May, 1907.

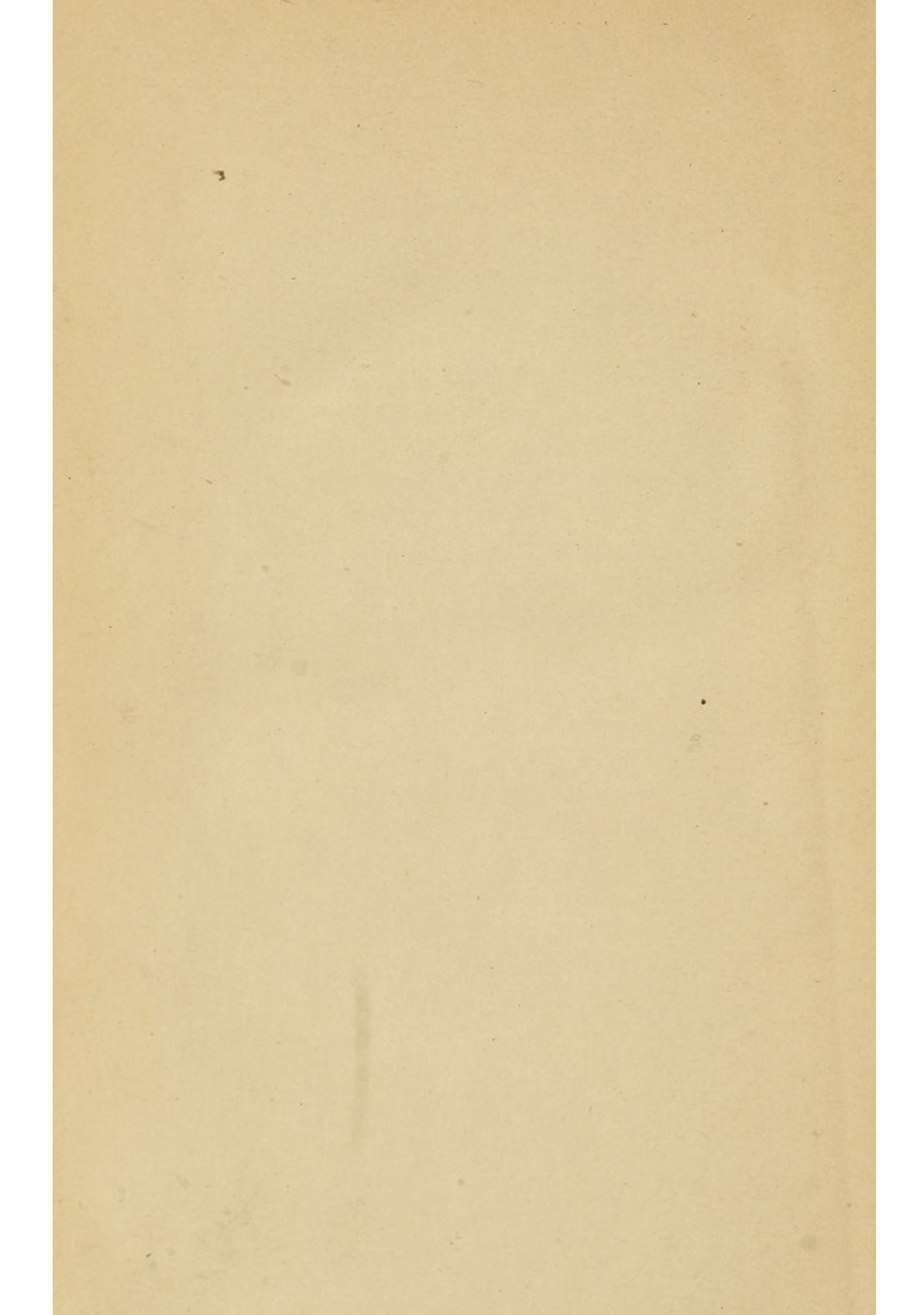
KEYES:—Northern Wisconsin as a Health Resort for the Under-Nourished, Those Poorly Developed and the Tubercular.—*The Medical Counselor*, July, 1907.

KEYES:—Dieting and Cooking for the Consumptive and for the Thin and Under-Nourished.—*The Anti-septic*, Madras, India, June and July, 1907.





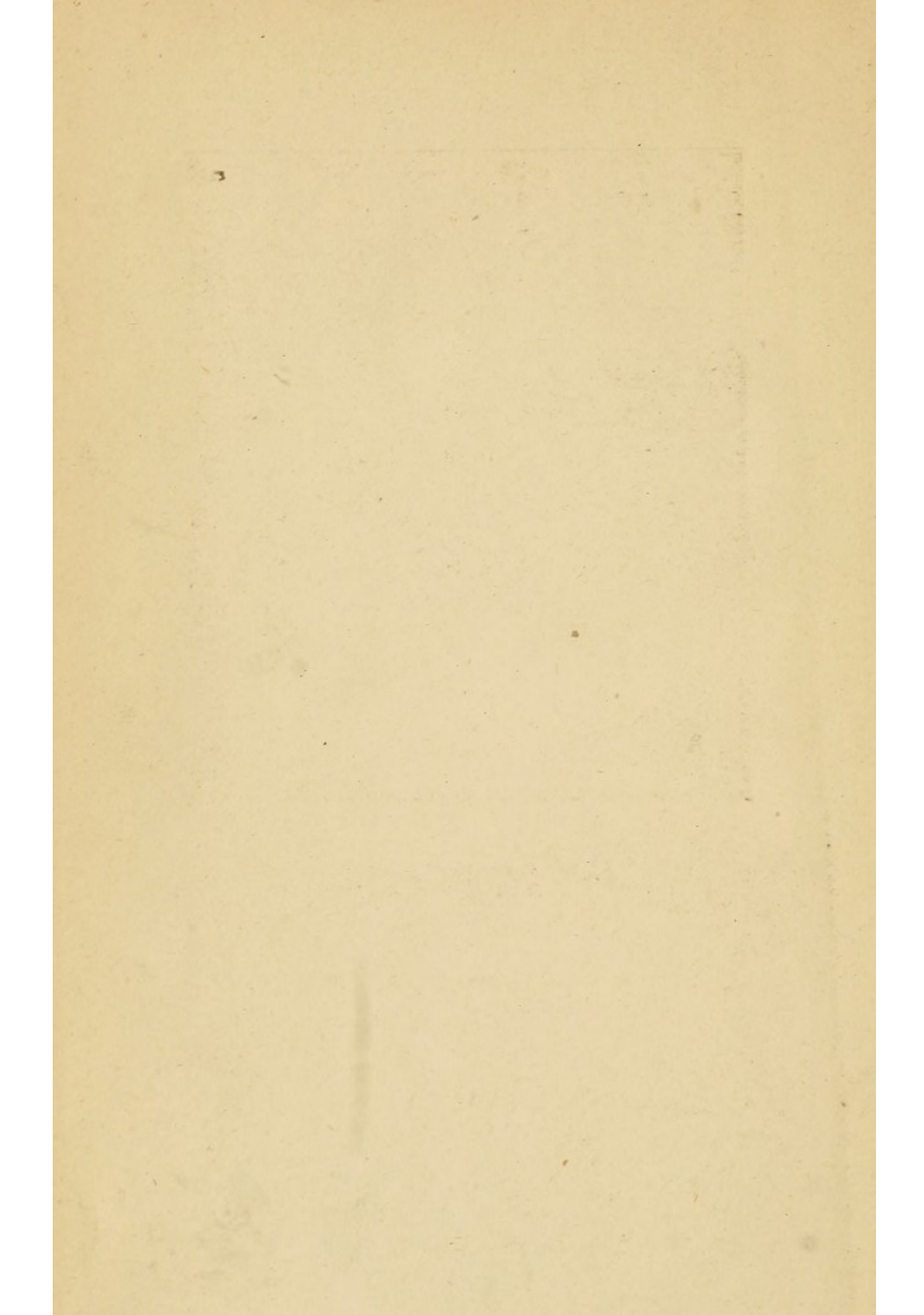














RC311

K52

Keyes

Renewal of life.



