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TENDENCIES TOWARD RACE DEGENERACY*

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A tendency toward race degeneracy implies a trend toward race extinction. The extinction of a race of animals, or even of a race of useful plants, is a sad event to contemplate; but the degeneracy and ultimate extinction of the human race is a catastrophe too appalling to consider calmly.

It will be impossible in the brief time allotted for this paper to discuss in all its bearings the question of race degeneracy. I shall undertake only to present a few statistical data and sundry observations which I trust may be deemed worthy of consideration. The facts and arguments adduced will be grouped about the following propositions:

1. Man belongs to the most highly organized class of mammals, a group of living forms which the history of animal life, as revealed by the study of the earth's crust, shows to be the most prone to degenerate and ultimately to become extinct as the result of changes in environment and departures from normal conditions of life. A large number of the highly organized animals which were coæval with primitve man have already disappeared. It is accepted as an establshed principle that the more highly organized an animal, the more susceptible it is to the destructive effect of changes in its environment. The oldest forms of animal, life, if I am correctly informed, are those possessed of the simplest and least differentiated organisms. The oyster, for example, has a history extending back long ages

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beyond the first traces of man. The fact that man appears to be one of the most recent arrivals among the members of the animal world, is, however, no guarantee of a long future, since the extraordinary development which elevates him so far above all other animal forms necessarily implies extraordinary susceptibility to destructive and degenerative influences.

2. While thus an easy prey to the causes which have produced degeneracy and finally extinction in other mammals living in essentially the same environment, civilized man has, in recent times, by the adoption of the conditions peculiar to civilized life, subjected himself to a number of subtle degenerative influences in addition to those which he has suffered in common with other races of mammals coæval with him, some of which have already perished.

3. There is at the present time a decided tendency toward physical decay and race degeneracy among civilized nations. Indeed, when we put together the two facts that man is perhaps the most susceptible to degeneracy of all mammals and that he is, at the same time, through the artificial conditions of life which civilization has forced upon him, the most exposed to degenerative influences, we could expect nothing less than that the results of degeneracy would be apparent. For more than fifty years, men whose studies or experiences have given them special opportunities for observation have been calling attention to the signs of degeneracy and the possibilities of the ultimate extinction of the human race unless effective preventive measures are adopted.

GALTON DECLARED THAT WE HAVE ALREADY NEARLY REACHED THE GRADE OF "TRAINED IDIOCY"

The great Galton, whose genius and generosity have in recent times created the new science of eugenics, says: "Our race is overweighed and likely to be drudged into degeneracy by demands

that exceed its powers. With the deterioration of the condition of the masses, their organizations and functions, there will be plenty of idiots, but few great men; and hence, under the miserable conditions in which the masses of the people live, *the general standard of man is but little above the grade of trained idiocy.*" Such a statement as this, from a source less wise and less authoritative, might be regarded as sensational; but, as the sober conclusion of a well trained and profoundly informed and well balanced mind, it must be accorded weight.

IMPORTANT FINDINGS OF THE BRITISH INTERDEPARTMENTAL COMMITTEE ON RACE DETERIORATION

A few years ago, the English government created a commission charged with the duty of investigating the question of race degeneracy in England. This committee, known as the Interdepartmental Committee on Physical Deterioration in Great Britain, made a very exhaustive study of the subject, taking the testimony of physicians, scientists, sociologists, magistrates, and people of all classes who had had opportunity for extensive and acurate observation, and published a voluminous report of their hearings. Many of the facts brought out in the several hearings were in the highest degree significant, as will be shown by a few representative extracts. On page 177 of the report we read:

"In England, degeneration is especially manifest in Manchester and other manufacturing districts. The police force is largely recruited from country districts, it not being possible to find enough men who are large enough in Manchester and Salford."

This is a most appalling statement. In a great section of England, comprising a population nearly equal to that of London, the people have become so deteriorated by the conditions of life to which they have been subjected that, in the words of the committee, it was not possible to find enough men who were large enough to serve as policemen.

A recruiting officer testified that *sixty per cent of those who offered themselves as volunteers for military duty were rejected because of physical unfitness*, and this notwithstanding the fact that the standard of requirements has been considerably lowered. For example, in 1845 (according to A. Watt Smith) the standard for admission to the army was five feet six inches. In 1883 it was lowered to five feet three inches. In 1900 it was lowered still further to five feet. In 1901 no fewer

Fig. 1.—Heidelberg jaw.

than 593.4 per mille were under the old standard height of five feet six inches, and 511.8 were under the chest measurement of thirty-four inches, which was the minimum in 1883. Notwithstanding the lowering of the standard, amounting to six inches in height, the total rejections were not decreased, and the decreases which were noted had relation to the measurements in which the standard had been lowered. (*Physical Deterioration, Its Causes and the Cure*, by A. Watt Smith.)

Statistics gathered by the British Association on

the height of adult men between the periods of 1874-5 and 1889 to 1902 showed *a decrease of one inch.* A committee of the British Association for the advancement of Science showed that the average height of boys between eleven and twelve years of age in the different schools was fifty-five inches; in industrial schools, same age, fifty inches. The difference in stature between adults of the same classes was three and one-half inches.

Sir William Taylor, director general of the army medical service, makes the statement that "the rising generation of all below the artisan class includes a vast number of men of a very low standard of health and physique."

Mr. Gray, a member of the Anthropological Institute, noted a deterioration of physique in a portion of the population of Edinburgh and in the population of the west of Ireland.

Within recent times attention has been drawn to the great number of defectives among school children. For instance, a Scotch committee which made an extensive study of this subject found seventy per cent of the children in the public schools of Scotland more or less abnormal. The condition in this country is no better. The New York Bureau of Municipal Research published the results of the examination *of 1500 school children in three city schools in which ninety-three per cent were found to be defective.*

THE HUMAN RACE BECOMING TOOTHLESS

We are rapidly becoming edentulous. The German authorities report that ninety per cent of the children of the public schools of that country have defective teeth. According to a recent report of a medical examination of the public schools of Cambridge, England, less than one per cent of the children eleven years of age or over had sound teeth. Indeed, disease of the teeth has become epidemic throughout the civilized world. This fact was made particularly clear by the investigations of the com-

mission appointed by the British Parliment. Professor Cunningham, the great English anatomist, testifying before this committee, said: "It is an obvious fact that the teeth of the people of the present time cannot stand comparison in point of durability with those of the earlier inhabitants of Britain. Those who have the opportunity of examining ancient skulls cannot fail to be struck with this."

Fig. 2.—Heidelberg jaw, viewed from above.

An eminent English dental surgeon, W. H. Dolamore, L.R.C.P., M.R.C.S., L.D.S., testified: "If we go back to quite ancient times, we find undoubtedly that the teeth were very much better than they are today. Thus, in ancient British skulls not only is

the arrangement good, the jaws well developed, and the teeth placed in a normal arch, but caries, if present, is of slight extent, indeed mere specks." Teeth taken from a plague pit (200 years old) were found to be "distinctly worse in arrangement and in extent of the caries than was the case in the ancient British skulls; but, on the other hand, they

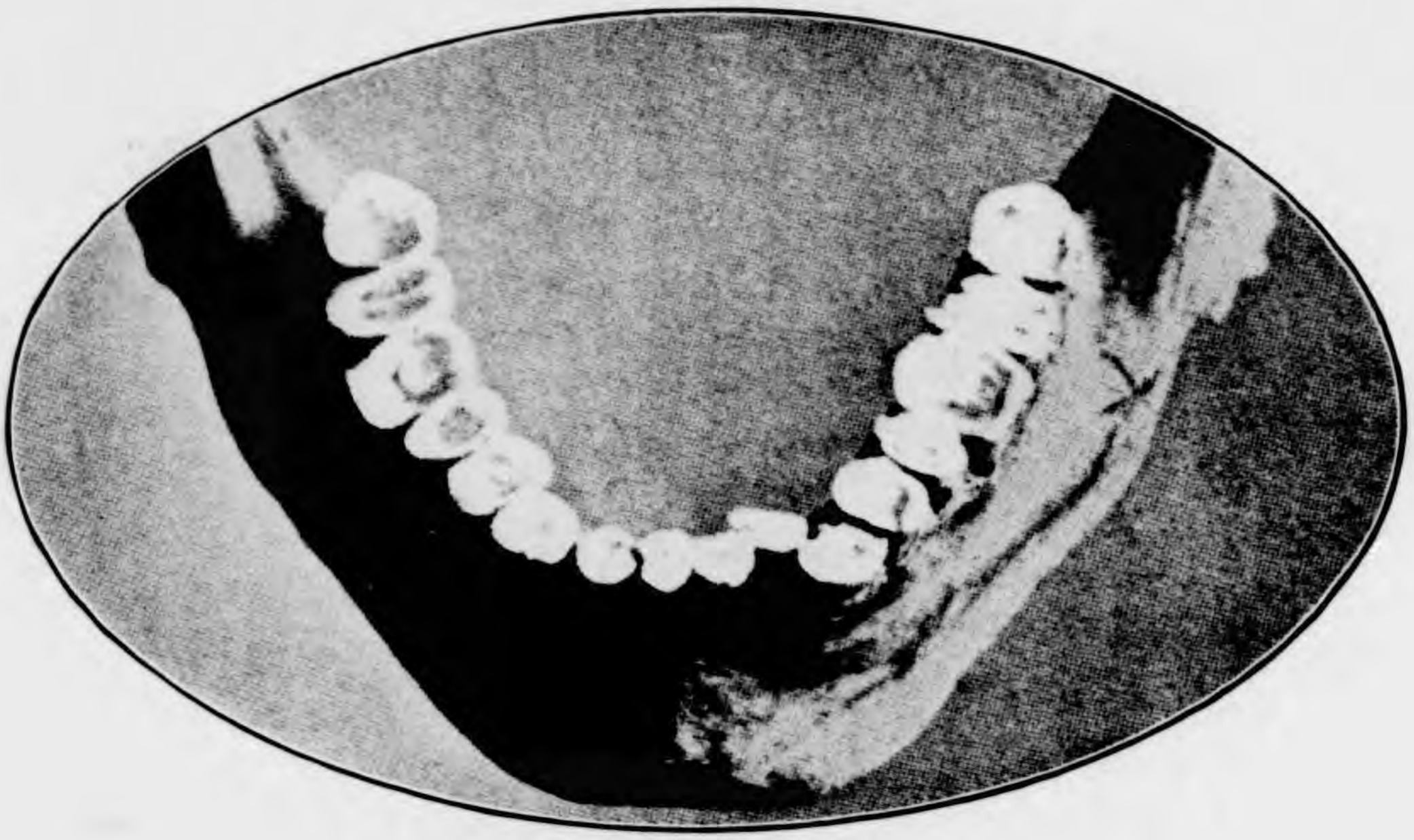

Fig. 3.—Jaw of mound builder.

are better than what we look upon as the condition of today."

Dr. Young, member of the Royal College of Surgeons, testified before the English committee as follows: "With regard to the evidence of deterioration, we find there are rickets, malformed heads, muscular atrophy, malformed mouths, imperfect dentition, facial appearance of age instead of youth, a decrease in population."

AN ALARMING DECREASE OF THE BIRTHRATE IN CIVILIZED COUNTRIES

A most positive evidence of deterioration is the diminishing birthrate. The birthrate in England fell from 35.3 per mille in the five year period 1876-1880, to 26.0 per mille in 1906-1910. Each period of five years shows a material decrease from the preceding period. The registrar general of England says in his annual report for 1907: "The fact is also significant that at the last census period, 1900-1902, the fertility of English wives was lower than recorded in any European country except France."

The birthrate is decreasing not only in England and France, but in nearly all civilized countries, as shown by the following table, copied from an official source; the only exceptions being Spain, Austria and Ireland:

DECREASE OF BIRTH-RATE BETWEEN 1880 AND 1902
COUNTRIES SHOWING A DECREASED FERTILITY RATE

Country	*Decrease per cent*
New South Wales	30.6
South Australia	28.0
New Zealand	24.5
Victoria	24.2
Western Australia	23.9
Queensland	23.2
United States	20.0
Belgium	19.8
France	19.7
England and Wales	17.7
Scotland	12.7
Denmark	9.8
The Netherlands	9.5
German Empire	8.4
Sweden	8.2
Switzerland	6.4
Norway	3.7
Italy	2.5

The rates shown in this table are calculated on the number of married women between the ages of fifteen and forty-five years. It is a matter worthy of note that the birthrate is diminishing more rapidly in the United States than in any other part of the world except Australia and New Zealand. The fertility of American wives is decreasing at the rate of one per cent a year. If the capacity for mother-

hood continues to diminish as rapidly as at present it is plain that in the year 2012 no children will be born, and in the year 2017 there will be no children under five years of age. Long before that time the deathrate will far exceed the birthrate. Indeed, the process of depopulation has already begun in certain parts of the United States. A recent census report shows the average number of children borne by native-born New England wives to be 2.7 and by foreign-born wives living in the same section, 4.4.

A member of the Royal College of Surgeons, who testified before the English Committee, called special attention to the increase in barrenness of women as a sign of race deterioration.

AN INCREASING NUMBER OF INCOMPETENT MOTHERS

Another evidence of degeneracy of a kindred sort is the increasing inability of women to nurse their children. According to the testimony of Dr. Jones, an eminent English physician, before the British Commission, only one in eight of the infants born in Sheffiield is brought up at the breast. According to Dr. Kelly, bishop of Ross, Ireland, "the practice of suckling is fast dying out." According to Dr. Holt, "in New York at least three childen out of every four born into the homes of the well to do classes must be fed at some other fount than the maternal breast." Within the last few years an enormous business in the manufacture of infant foods has been built up in this country because of the inability of American mothers to nurse their infants, a fact which is in itself a most striking evidence of the progress which race degeneracy is making in this country.

The number of incompetent mothers is increasing rapidly among civilized people everywhere. This fact has become so conspicuous that the eminent professor of entomology of the University of California has become convinced that the human race, like many other animals in which the social instinct is developed, is evolving a sort of neuter type corresponding to the worker class of bees and of some

species of ants. The learned professor has discovered that women are in increasing proportions losing the instinct and the capacity for motherhood, and he predicts that a few generations will suffice to develop in the race a large class of women for whom marriage will be interdicted and who will be by society as well as by nature set apart as a working class. Whatever may be the value of this theory, the fact remains that the maternal fount is rapidly drying up and the capacity for motherhood is depreciating at an extremely rapid rate. Race suicide or race degeneracy, of which ex-President Roosevelt has spoken so frequently and so emphatically, is an actuality and constitutes one of the unmistakable stigmata of racial degeneracy. There is no doubt that in certain parts of the United States decay of the native population through diminished fertility is already far advanced, though the actual condition is for the present somewhat obscured by immigration and the large families of the newcomers.

APPALLING INCREASE OF INSANITY, IDIOCY, AND IMBECILITY

The increase of insanity and idiocy has become so marked in recent years that a note of alarm is frequently heard from alienists on both sides of the Atlantic. Dr. Forbes Winslow, one of the world's greatest authorities on mental diseases, recently stated in a public utterance published in the *London Times* that in his opinion the entire race is destined to become insane. The superintendent of the Insane Asylum at Austin, Texas, in a recent report called the attention of the people of that great State to the portentous fact that insanity is increasing so rapidly in Texas that unless something is done to check it, it will not be many years before the insane will outnumber the sane, and, as the superintendent said to the writer, "will break out of the asylums and put us in."

And other parts of the United States are far in

advance of Texas in mental decadence. For example, in 1867 the proportion of the insane in New York and in New England was about one to 1,600 of the population. At the present time the proportion of insane in New York is one to 273 of the total population, or practically six times as many. In a pamphlet by Homer Folks and Everett Elwood, issued by the State Charities Aid Association of New York, it is stated that there are in the hospitals of New York alone 32,657 insane persons —more than double the number in 1890· an increase of 104 per cent in twenty years, while the population in the same State has increased only fifty-two per cent.

This number, great as it is, by no means represents the entire number of insane or of mental defectives in the State of New York, since the statistics of the hospitals show that about twenty-five per cent of all persons who are committed to the insane hospitals are discharged within a year as cured, at least temporarily, and twenty-five per cent more are discharged not cured but improved sufficiently to be thought not to require asylum restraint; from which it appears that there must be outside of the hospitals at least one-half as many more people who are either partially insane or who have once been insane. There is also a very considerable number of persons who are more or less disturbed mentally but who, because of the harmless character of their mental aberrations, are not thought to require asylum treatment.

Reports of the various insane hospitals of the United States show that we have an insane population of 150,000 who are under restraint, and unquestionably at least as many more who are at liberty.

Insanity is increasing even more rapidly in the British Isles than in this country. The English commission on race deterioration in its summary states: "There can, it is feared, be no question that insanity is on the increase in Ireland." (Par. 404,

Vol 1.) The number of insane in Ireland in 1902 is put down by the committee as one in every 170 of the population, while fifty years ago the number did not exceed one to 730, which means an increase of 300 per cent in fifty years. In this country, the increase has been nearly as great, or about 300 per cent in the same time.

Besides this great army of lunatics, there is an equally large army of idiots and weak minded persons, constituting a group of defectives which reaches not less than 300,000. Professor Davenport, head of the Department of Eugenics of the Carnegie Institute, recently informed me that a study of defectives in the State of New Jersey shows that the feeble minded class has doubled in that State in a single generation; that is, the proportion of this class to the whole population is twice as great as a generation ago. The proportion is now one to 250 of the total population. In Ireland, an older country, the proportion is one to 147. Evidently there are lower levels of mental degeneracy which we have not yet reached, and toward which we are hastening. We have now one mental defective (insane or feeble minded) in every 300 of our population, and Ireland has 7,000 to the million. At the present rate of deterioration we shall be in the sad position of Ireland long before the middle of the century, and Ireland will have a lunatic or a feeble minded person in every fourteenth family. These terrible facts demand attention. We are creating a lunatic and idiot population which threatens to become a majority within a few short centuries.

The tract sent out by the State Charities Aid Association, from which I have already quoted, calls attention to the fact that nearly thirteen per cent of the total number of insane are paretic, and that these probably owe their condition to syphilis, the social ulcer which every year is eating deeper into the constitution of every civilized race.

That insanity is a disease of civilization is shown

by the extreme rarity with which this condition has been observed among the North American Indians, and the fact that while in England there are found six recognized insane persons to every 1,000, among the less civilized of the Slavonic races the proportion is only one-tenth as great, or 0.6 per 1,000.

RAPID SPREAD OF THE CANCER PLAGUE

Another degenerative malady characteristic of civilization is cancer. Williams has shown that this disease is practically unknown among the wild races of men and of animals; that it is most common in the most highly civilized communities and among domestic animals. Cancer at the present time kills one in twenty of all the people dying in the United States. Its prevalence has increased 500 per cent in sixty years. The disease is advancing more rapidly in the cities than in the country, a statement which applies to chronic diseases in general. In many cities the mortality rate for cancer is more than double, the average reaching nearly 2,000 to the million annually. Cancer is a chronic disease, and the death of 75,000 from this disease in the United States annually in spite of the best efforts of modern surgery means that not less than 300,000 are suffering constantly from this most loathsome malady. At the present rate of increase, by the middle of the century at least one in forty of the entire population will be suffering from this disease, and twenty-five per cent of the mortality will be due to it.

Of the women who died in 1909 between the ages of forty-five and fifty-five years, one in seven died of cancer. The disease is increasing rapidly among women, but still more rapidly among men. Thirty years ago this malady carried off twice as many women as men. At the present time the mortality among men is three-fourths as great as that among women.

The statistics of the London and Berlin hospitals for sick animals show that eight per cent of the sick dogs are found to be suffering from cancer,

and seven per cent of the cats. Among non-flesh eating animals—horses, cattle, sheep—the proportion is very greatly less. The records of the London hospitals show twelve per cent of the sick received into their wards to be suffering from cancer.

It has recently been discovered that cancer is epidemic among the fish of several of the fish hatcheries of the United States Fish Commission, and every fish hatchery in the United States is more or less infected with cancer. The form of cancer in fishes is identical wth the true cancer of human beings.

Ross, of Liverpool, has recently shown that cholin and other poisons resulting from the disintegration of animal flesh produce abnormal cell growth, and are the probable cause of cancer. [Since writing the above the writer has had an opportunity to visit the laboratory of the Lister Research Institute in London, where Dr. Ross is now at work, and witness a most satisfactory demonstration of the remarkable discoveries of this investigator, which are now recognized by Prof. Osler, of Oxford, and many other eminent authorities. Dr. Ross has largely proved the truth of his contention by producing cancer in guinea pigs.]

INCREASE OF EYE AND EAR DEFECTS

Eye and ear defects are decidedly on the increase. Dr. Alexander Graham Bell pointed out long ago the fact that the asylum treatment of deaf mutes and the very natural intermarriage resulting was creating a deaf mute variety of human beings.

The increase of eye disease is so rapid that the time seems not far distant when the use of glasses will be almost universal. Twenty per cent of the children in the public schools of England have defective eyes. Among the volunteers for the Boer War the number of persons with eye defects was found so great that it became necessary to accept many of them as soldiers, contrary to all previous practice, and to fit them out with glasses in order to keep the ranks of the army filled.

THE MORTALITY RATE FROM CHRONIC DISEASE HAS DOUBLED IN THIRTY YEARS

Chronic disease and degenerations of all sorts are increasing, and at a very rapid rate in recent times. Careful study of the mortality reports of the United States Census Bureau makes this fact very clear. These reports show, for example, that the mortality from arteriosclerosis, a disease of the blood-vessels, has increased from 6.1 per 100,000 in 1900 to nearly twenty-one per 100,000 in 1909, an increase of 241 per cent; that is, more than three times as many people die from disease of the blood-vessels today as ten years ago.

The mortality rate from diabetes, in spite of all the discoveries in metabolism and improvements in dietetics, has increased nearly fifty per cent in ten years; and the mortality from appendicitis, notwithstanding the best efforts of able surgeons, has increased more than twenty per cent in the same time.

During the same time, the mortality from heart disease has increased over fifty per cent. Mr. Rittenhouse, late president of the Provident Savings Life Assurance Society of New York, has recently called attention to the fact that there has been an increase in thirty years in the mortality from Bright's disease in the United States of 167 per cent. Mr. Rittenhouse goes on to show that the mortality from chronic disease in general has doubled in less than thirty years, and that the total mortality between forty and fifty years has increased thirty-four per cent, between fifty and sixty years twenty-two per cent, and between sixty and seventy years twenty-five per cent. The expectancy of life after forty years has thus notably decreased because chronic disease finds most of its victims among persons past middle age.

Chronic disease kills half the people who die in the United States, or about 750,000 persons annually. Half of these, that is 375,000, would not die if the average health were as good as thirty years ago. This enormous increase in the mortality rate

from chronic disease has escaped the attention of sanitarians because of the notable decrease in the general death-rate, as the result of a decrease in deaths from acute disease so great as to more than equal the increase in deaths from chronic disease.

This great improvement in the general death-rate has increased the average length of life more than fifteen years in a century, and this fact has been accepted as satisfactory evidence that we are making rapid progress in race improvement. This is a grave error. It is important to recognize the radical difference between acute and chronic disease. The poet Watts sang:

> Diseases are Thy servants, Lord;
> They come at Thy command.

This hymn is found in all the old hymn books. It represents the old philosophy of disease, which led a certain pope in the Middle Ages to anathematize the Turk, the pestilence, and the comet. Modern enlightenment has shown us that disease is an evil of human production. Acute diseases we take from our neighbors; chronic diseases are a home product, the result of erroneous habits, often poison habits acting through long years and producing a gradual degeneracy of the tissues.

NOTABLE INCREASE OF CRIME

When we turn from the contemplation of physical disorders to the consideration of moral maladies, the picture is darker still. Crime is increasing at a rapid rate. There are 10,000 murders, and 16,000 suicides every year—one murder in every 9,000 of the population annually, and one suicide in every 5,800. The proportion of murders to the whole population is reported to be twice as great in this country as in India, a country which we are trying to help civilize and Christianize.

Within twenty-three years the number of suicides in Great Britain has doubled. This crime is increasing in the United States at about the same rate.

In France, according to the *Revue de Paris*, crime is increasing rapidly, especially juvenile crime. There are 400,000 highway robberies in France annually. A criminal type of men and women is developing, and has already reached large proportions in all civilized countries. A bulletin recently sent out by the Eugenics Record Office of the Carnegie Institution tells of a family with 319 members, only forty-two of whom were normal; and the proportion, we are informed, has since been found to be 600, with only fifty normal.

CENTENARIANS RAPIDLY DECREASING IN NUMBER

Another evidence of the pernicious influence of the one-sided hygiene which simply preserves the unfit, while doing nothing to cure its unfitness, appears in the marked depreciation in the proportion of centenarians to the whole population which is going on in all civilized countries. The REAL MEASURE OF THE PHYSICAL VIGOR OF A RACE IS NOT THE AGE AT WHICH THE AVERAGE MAN DIES, BUT THE PROPORTION OF INDIVIDUALS WHO ATTAIN GREAT AGE. Cholera, yellow fever epidemics, and other plagues, in former times weeded out the weaklings, drunkards, debauchees, and other classes of the unfit. By keeping these alive through quarantine and public sanitation, the average longevity is increased, although both the actual number as well as the proportion of centenarians has steadily diminished. We have been making ourselves believe that the tree was flourishing because of the great number of young sprouts about the bottom, while the main trunk is dying at the top.

Statistics of all highly civilized countries show a steady falling off in the number of centenarians. We have in this country at the present time less than 4,000 centenarians, or one in 25,000 of our hundred million. Bulgaria has 3,000 centenarians in a population of 3,000,000 or one in every 1,000 —twenty-five times as many in proportion. Older civilizations are worse off than we are. In France the proportion of centenarians is one in 190,000 of

the population; in England, one in 200,000; and in Germany, one in 700,000. In these countries decay has extended so far down the trunk that it has nearly reached the level of the young shoots.

Senility and youth are approaching each other, and the time seems not far distant when the normal interval between youth and second childhood will disappear, and childhood will be met by second childhood. A Philadelphia doctor reported a youth of twenty-eight years whose arteries were as hard as pipe stems, and a German authority reported a similar case in which the patient's age was seventeen years. Men and women of forty years, who present all the evidences of advanced senility, are rapidly increasing in number. The responsible cause is the same as that which produces the increasing mortality from Bright's disease, heart disease, and pneumonia. Degenerated kidneys, hardened arteries, fatty heart, are simply old kidneys and arteries and sterile heart.

ANATOMICAL EVIDENCES OF DEGENERACY IN MAN

Pofessor Wiedersheim, of Freiburg, one of the world's greatest authorities in comparative anatomy, in his work, *The Structure of Man*, points out nearly one hundred and fifty different organs of the human body which are in a state of degenerative change. Some of these are so far atrophied that their functions are altogether lost, and even their vestigial remains are often lacking. A few conspicuous examples of these anatomical degenerative changes may be cited by way of illustration.

Wiedersheim points out the fact that the chest of civilized man is decreasing in size. The sternum and the upper rib are atrophying. The thirteenth rib, which man originally had, as have the gorilla and the chimpanzee, appears only occasionally. The eighth sternal rib is gone, and the seventh is atrophying. The eleventh and twelfth ribs have nearly disappeared. Contrasted with the chest of a savage or a gorilla, the chest of a civilized man is almost insignificant.

Wiedersheim aptly raises the question whether this reduction in the size of the chest may not be connected with the degeneration of the lungs (tuberculosis) so frequently observed in civilized man.

The feet are degenerating notably. The muscle which renders possible opposition of the great toe, that is its use as a thumb, appears in the human embryo, but is not present in the adult. The corresponding muscle of the little toe is nearly lost. The little toes have but two joints instead of three in one person out of three, and often a joint is lacking in the third or fourth toe. In the Japanese the degeneration of the feet is far less marked than in Europeans. Bälz, who made a careful study of the Japanese, says:

> The use made by the Japanese of the great toe as a kind of thumb is very remarkable; it can be independently moved. . . . A woman when sewing may hold the stuff with her toes, stretching it as she pleases; and it is asserted that Japanese women can pinch effectively with their toes. . . . These people seem to be able to hold on to the ground with the sole of the foot. . . . In fighting they are always barefooted. The first time one sees a Japanese man walking about with ease on a steep housetop as if on level ground, it makes one feel quite uncomfortable, but no fear of his falling need be entertained, for his foot accurately adapts itself to the surface of the roof.

The abdominal muscles are greatly diminished in size, especially the rectus, which formerly extended to the top of the chest, and now sometimes reaches the second rib. The palmaris, or fingers flexor, is nearly lost, as well as the plantaris of the leg.

The outer ear has become diminutive, and the muscles which formerly moved it are now mere vestiges.

The olfactory ridges of the nose are diminished to two or three in place of twice as many, and the olfactory tract in the brain is likewise degenerating.

But, most evident of all, and perhaps most serious, is the degeneration of the teeth. Widersheim points out that the teeth are degenerating both in size and in number. He also shows that the lower jaw and the muscles which move it are becoming smaller. The outer incisors of the upper jaw are often lacking, or reduced to mere stumps, and the

third molar or wisdom tooth of both jaws is disappearing. The jaw is shortening so that there is not room for the third molar. This degeneration is most marked in the second or permanent teeth. Wiedersheim attributes this degeneration of the teeth to the change in man's diet from the natural non-flesh diet of primitive man, to the unnatural diet of the present day.

NEW AND ABNORMAL VARIETIES OF THE HUMAN RACE

Evidently, we are developing a number of defective varieties of the *genus homo*. We are losing our teeth. The jaw, not properly used in mastication, is becoming so short that there is no room for the last molar. The wisdom tooth comes in late, and, after making no end of trouble for two or three years, dies prematurely through lack of a proper blood supply. I possess the skull of a mound builder taken from a mound on Roberts Island in San Francisco Bay, evidently that of an old man, yet each jaw contains sixteen well worn teeth, not one of which shows the slightest evidence of decay. (See accompanying cuts).

We are losing our sense of smell, the result of disuse and of almost universal disease of the nose from low vital resistance and infection. And we have no compensation for the loss of this most important sense.

Then we have the myopic man, and the hypermetropic man, the astigmatic man, who cannot see straight, and the insane type of man, who thinks astigmatically; the epileptic type, the criminal type, the consumptive type, the neurotic type, the inebriate type, the senile man, the weak footed man, the feeble minded man, the dyspeptic type, the neuter type of woman. All these, and numerous other pathological varieties of human beings are, through the inexorable law of heredity, multiplying and intermingling, thus intensifying old defects and creating new ones and leading on down the hill of race degeneracy.

SOME OF THE CAUSES OF RACE DEGENERACY

There is evidently something the matter. It is the duty of sociologists and sanitarians to find out the causes and the remedy. Some thirty years ago my duties as a member of the Michigan State Board of Health led me to make a somewhat careful study of public health laws and administration, as a result of which I reached the conclusion that public health regulations of all sorts were detrimental and dangerous to the welfare of the race unless supplemented by more thoroughgoing measures which would reach the personal life of the individual. It seemed to me obvious that public health regulations and quarantine restrictions would serve to keep alive a large number of weakly infants and feeble adults whose infirmities and deficiencies through the operation of heredity would affect and weaken the race. The eminent Professor Cunningham, in his testimony before the English committee on race deterioration, referring to the lowering of the death-rate through improved hygienic measures, and the preservation of the weak and unfit, remarks: "There can be little doubt that the addition of these to the population must have tended to lower the general physical average of the people of these countries."

Public sanitation preserves the unfit instead of securing the survival of the fittest, and the unfit contaminate the fit. This explains the fact, to which Mr. Rittenhouse had called attention, that notwithstanding the increase in the average longevity within the last century, the mortality after forty years has notably increased.

W. H. Dolamore, L.R.C.P., M.R.C.S., L.D.S., in testifying before the British commission, attributed the great prevalence of decay of the teeth in young children to the preservation alive of a great number of feeble infants in recent times. He remarked: "If you take a primitive condition of society, it is perfectly obvious that most sickly chil-

dren would die off. For example, take as an extreme instance the children that Darwin met with while in Patagonia, where he noted that the newly born child was carried about naked by its mother, and the rain froze on it as it fell. It is perfectly obvious that every sickly child would be killed off and therefore only those that were vigorous would survive."

Here, then, is a fundamental cause in operation in every civilized community which must tend to race deterioration and possibly ultimate extinction, unless counteracted by attention to the personal habits of each individual so that the unfit who are preserved alive may so far as possible be made fit, and general race deterioration be thus prevented.

The preservation of the unfit, while humane and altruistic, is nevertheless a menace to the race and lends a helping hand toward ultimate race destruction, unless we do something more. If we are to save alive the unfit, we must heal them of their unfitness and prevent the multiplication of their defects by recognizing the laws of eugenics; otherwise out altruism to the individual becomes homicide to the race.

THE DEGENERATIVE INFLUENCE OF SOME COMMON HABITS

A brief glance at some of the conditions universally prevalent among civilized people shows how wide a departure has been made from normal conditions of life. The first men were born out of doors. Native to a tropical climate, primitive man required neither house nor clothing, but climatic changes compelled him to seek shelter in caves, and he has been a cave-dweller ever since. Tuberculosis is a house disease. Monkeys, antelope of all sorts, even lions and other carnivorous animals, die of tuberculosis when shut away from the fresh air and the sunshine. Dr. Evans, health officer of the city of Chicago, turned the consumptive monkeys of the city zoological collection out of doors in dead of winter, and they got well. Tuberculosis is un-

known among animals that live in the open air. The tuberculous type of man will continue to multiply until we learn to cultivate the out of door life and to sleep in an out of door atmosphere. Colds, catarrhs, pneumonias, general low resistance, the mother of all maladies, are the natural outcome of our adherence to the example of our cave-dwelling ancestors.

The artificial habit of wearing clothes enfeebles the skin by overheating, retains the poisonous excretions to be reabsorbed, polluting the blood, and giving rise to various skin maladies. Absence of the vitalizing rays of the sun playing upon the skin and of the tonic influence of contact with the moving air, the wearing of shoes, hats, restricting bands, and other garments, are all prolific sources of debility, systemic weakness, and lowered resistance, which open the door to numerous grave and vital maladies and general race decay. We cannot dispense with clothes, but we must counteract the evil effects of clothing by frequent cleansing baths, daily cold water or air baths, swimming, work in the gymnasium, wearing of light and porous clothing, and frequent change of underwear.

Women are degenerating more rapidly than men, for the reason that they are more indoors. Their clothing is more restrictive; their habits more sedentary. The average savage woman is nearly as strong as the savage man. The civilized woman has but half the strength of the civilized man.

This fact has been positively shown by the comparative tables of muscular tests made with the universal dynamometer, an instrument used by the United States government in the examination and training of men for the army and navy. Averages of many hundreds of cases were made and the data compiled with care.

The bad conditions of school life kill nearly 90,000 children in the United States every year. The out-of-door school, cold-air school rooms, school gymnastics at the end of every period, medical school inspection, and the daily and hourly incul-

cation by teachers of respect for the body and the principles of healthful living, are necessary reforms.

A swimming pool, ample playgrounds, and an open-air gymnasium should be connected with every public school system.

The basis of education must be changed. The development of a sound body must be the first desideratum, rather than the training of the brain in mental gymnastics while the body is left to fall into decay.

Diet is a factor of primary importance in the biological development of the race as well as of the individual. Each race of animals selects by instinct the food best adapted to it. The human race, at least the civilized portion of it, seems to have lost its guiding instinct, and has wandered far in its dietetic practices from the normal and physiological way of life. Man has unwisely added to his natural diet the bills of fare of nearly all other creatures, besides many things not foods, as condiments, and with most disastrous results.

The chimpanzee still adheres to the original bill of fare which nature provided for primitive man and his relatives. The big apes of the London Zoo are wholly content with a diet consisting of lettuce, oranges, bananas, rice, potatoes and bread, with now and then a cocoanut or a handful of monkey nuts.

Man discovered fire, which has enabled him through cookery to feed upon roots, dry grains, and the flesh of animals. Cookery has rendered the race invaluable service, but has unquestionably been the means of leading us too far away from our primitive dietary. The great hopes raised by the application of Pasteur's discovery to the destruction of the germs in milk were only in part realized, for it was soon discovered that infants fed on cooked or sterilized milk became rickety and had symptoms resembling those of scurvy. It has been definitely shown that the cooking process breaks up and destroys many delicate compounds and enzymes

which are essential to complete nutrition. No farmer would think of feeding his horses, pigs, or cattle on an exclusive cooked diet. Something uncooked should be eaten daily to preserve the integrity of the body. A Western pioneer told the writer that when shut in for three weeks in the Sierras, he escaped the scurvy, from which all his comrades suffered, by following the example of the mules, which dug away the snow and ate the grass underneath.

Dr. Lauder Brunton tells us that one reason why we lose our teeth is because we do not get lime enough in our food. Bunge, of Basel, and Sherman, of Columbia, have pointed out that half the people of the United States are suffering from lime starvation through the use of foodstuffs which contain little or no lime. The body loses daily seventeen grains of lime in the excreta. This must be replaced. If it is not replaced by the food, the bones and teeth are robbed of lime and thus softened. The lime content of foods varies greatly. A pound of wheat or of graham flour contains four grains of lime; a pound of bran twenty-four grains; a pound of fine flour but one grain; a pound of meat only half a grain; a pound of potatoes less than two grains; a pound of sugar none at all. A pint of milk contains fourteen grains of lime; a pint of cream three-fourths as much; a pound of butter almost none at all. Peas and beans contain eight grains of lime to the pound.

It is thus evident that sugar, though a carbohydrate, is not a proper substitute for the carbohydrate of cereals; and lean meat, though rich in protein, is not a proper substitute for the protein of vegetables; because in both instances the lime which is by nature association with the carbohydrates and proteins in the necessary proportion has been separated, in one case by the artificial process of milling, and in the other by the natural process of assimilation. The corn which the hog eats contains an abundance of lime, but, when assimilated, the lime is separated, going to the bones, while each other food principle goes to its proper

tissues—the protein to the muscles, the starch and oil to the fats. When the hog is eaten, the bones are left behind, and the lime with it. The bones must be eaten with the flesh to get the lime which is necessary to render it a complete food.

The annual average per capita consumption of meat in the United States, including fish and fowl, is 240 pounds, or two-thirds of a pound a day for each man, woman, and child. The per capita consumption of sugar is over eighty-two pounds, or about four ounces a day. With the addition of butter and other fats, these items furnish three-fourths of the nourishment of the average citizen of the United States, and supply practically no lime. Here is abundant reason for decay of the teeth, and the consequent depreciation of stature seen especially in England.

The marked change in diet which has occurred in the last half century may be in large part responsible for the great increase in chronic disorders which has added 350,000 to the annual death-roll within thirty years. The mistake of the earlier students of human nutrition in placing the protein ration at a figure at least twice the real requirement encouraged a mischevious increase in the use of flesh foods, the disadvantages of which have been demonstrated by Professor Chittenden, of Yale, by Dr. Hindhede, in Denmark, and by numerous physiologists in various countries. The unusable surplus of protein resulting from the free use of meat and eggs is converted into poisons, producing a condition commonly known as autointoxication since the discoveries of Bouchard, and now recognized as the real cause of most chronic diseases and degenerations, many of which were formerly attributed to vague and mysterious causes.

The ordinary dietary, consisting largely of meats which are always in a more or less pronounced state of decay, promotes intestinal putrefactions which Metchnikoff, Boix, and others have shown to be the cause of hardening of the blood-vessels and many other degenerations. The high protein dietary in

the writer's opinion has played a very large part in producing modern race degeneracy.

Of all animals, man is the only one that spoils his food before he eats it. Every other creature takes it from the beneficent hand of Nature as it has been provided for him. Man not only burdens his one simple, rather feeble stomach, with the bills of fare of all creation, but deliberately, under the guise of cookery, damages wholesome foodstuffs by various pernicious processes which render it indigestible, and by the addition of poisonous substances called condiments. Recent researches have shown that extracts of mustard, pepper, and other irritating condiments, when injected in small quantities into the blood-vessels of animals, in a few months produce atheroma of the arteries and other changes characteristic of senility. Boix, of Paris, has shown that pepper and other substances are even more active than alcohol in producing cirrhosis of the liver and other visceral degenerations.

Pavlov's discoveries have made clear the enormous mischief which is daily done to the digestive organs by the use of baking powders and alkalies in other forms.

Overeating is probably doing more harm than underfeeding among civilized people. Bright's disease, cancer, and decay of the teeth are found to be more common among the well to do than the poor. Cancer, in particular, is a rich man's disorder,—the result of high protein feeding and sedentary habits.

THE PER CAPITA POISON DOSE

Poison habits are increasing, both in the number of enthralling drugs and the proportion of victims. Alcohol, tobacco, tea, coffee, cocoa, cocaine, and opium are yearly destroying new armies of victims, and through heredity sending their baneful results down to posterity. According to data furnished me by the Census Bureau, the people of the United States consume every year 1,935,000,000 gallons of alcoholic liquors, 400,000,000 pounds of smoking and chewing tobacco and snuff, 7,500,000,000 ci-

gars, 5,500,000,000 cigarettes, 111,000,000 pounds of cocoa and chocolate, 1,000,000,000 pounds of coffee, 100,000,000 pounds of tea, 400,000 pounds of opium, and 30,000 ounces of that most subtle of all enslaving drugs, cocaine.

The per capita consumption of these various poisons figures out as follows: Alcoholic liquors, 176 pints, or half a pint a day for each man, woman, and child; tobacco, according to the *Tobacco Journal*, 10 pounds for each man, woman, and child living in the United States; tea, coffee, cocoa, and chocolate, fifteen pounds; opium, thirty grains.

Essential poisons are contained in these several drugs in quantities taken annually per capita as follows: Pure alcohol, 120,000 grains; nicotine, 2,100 grains; caffeine, 2,100; opium, 30 grams; equivalent to the following daily doses of poisons: 356 grains of alcohol, enough to kill a child if taken in concentrated form and at one dose; six grains of caffeine, a poisonous dose for a cat, and a large medicinal dose for a man; six grains of nicotine, enough to kill fifty cats, or six men not accustomed to the use of tobacco; and one-twelfth grain of opium; aggregating 368 grains of poison.

With this amount of deadly poison circulating daily and nightly in the veins of the average American, it is no wonder that signs of degeneracy are making their appearance. And to the above list of poisons must be added a vast amount of miscellaneous poisons swallowed under the guise of patent and proprietary drugs, especially certain coal tar products, the tendency of which to produce degenerative changes is well known, and even a new class of soda fountain drinks to which Dr. Wiley and the U. S. Agricultural Department have recently called attention, containing caffeine and other drugs.

The recent studies of Andriessen, Tuke, Hodge, and others have shown how these drugs destroy a man soul and body, by producing degeneration of the delicate fibres by means of which nerve cells communicate with one another, thus isolating the

individual units of the cerebrum and so destroying memory, coordination, will, and judgment, and wrecking the individual physically, mentally, and morally. Poisons which affect the consciousness, such as alcohol, tobacco, opium, cocaine, tea, and coffee, act first to depress and paralyze the highest faculties, the conscience, the sense of propriety and fitness, respect for the rights of others. Under the influence of alcohol, for example, the adult becomes a child in judgment and emotional excitability, yielding to every impulse, a prey to every emotion. The brakes are removed from the mind, self-control is gone, conventional usages and sanctions are ignored. The drunken man is insane. After many repetitions, the condition becomes permanent; degeneracy has resulted from the chronic poisoning, and this condition may be passed on to posterity.

A most striking example of alcoholic degeneracy is afforded by the study of 117 alcoholic families by Professor Alfred Gordon, of Philadelphia. In ninety of these families, there were 200 children, all of whom showed the stigmata of degeneracy; 150, or three-fourths of the whole, were epileptic. Of seventy-eight children found in twenty families whose parents and grandparents were both alcoholic, thirty-five were imbeciles and twenty-five insane.

William McAdam Eccles, M.D., F.R.C.S., testified before the royal commission appointed to study race deterioration in Great Britain, that alcohol is a cause of sterility in women. (Par. 10, 109.)

Professor Bunge, the world's most eminent authority in the chemistry of nutrition, has shown by carefully studied statistics that the inability of mothers to nurse their children is one of the hereditary results of alcoholism in fathers.

Recent experiments have shown that a high protein diet (a flesh diet) causes sterility in rats and fowls. An eminent English physician (Dr. Watson, of Edinburgh) has called attention to the fact that the birth-rate has decreased in England in proportion as flesh eating has increased.

From every distillery and every saloon, from every tobacco factory and every cigar stand, and from every brothel, there is pouring out a stream of degenerative influences which are more destructive than all others which the human race has encountered during its long history. Man has managed to survive the most terrific terrestrial upheavals and cataclysms; he has fortified himself against climatic changes; he has overcome the monsters of the forest which preyed upon him; and now he is conquering one by one his microscopic enemies, but in spite of all this, his voluntary departure from normal conditions of life, the damages which he voluntarily inflicts upon himself by poison habits and other vices, are slowly but surely destroying his racial stamina, and in the end will certainly accomplish his ruin unless the danger of such wide departures from normal conditions of life is recognized and the evil averted by a return to natural ways of living.

The rapid increase in the proportion of city to country population within the last half century is without doubt a very active factor in modern race degeneracy. The dust and infections of the city, the noise, stress, excesses, and other abnormities, create a degenerate type of man. The city population in England is three times as great in proportion to the whole as fifty years ago. The same may be said of the United States.

In summing up its report the British commission said on this point: "In regard to certain classes in Dublin, Sir L. Ormsby was convinced that there was evidence of progressive deterioration, and Sir Charles Cameron seemed to share the same belief. It is not only that the effect of migration into the towns is to make the next generation of a weaker type, but, in Sir L. Ormsby's opinion, the people who come into the towns from the rural districts are of a weaker type to start with and therefore more vulnerable to the noxious influences of urban existence. From the facts that came under his knowledge, the bishop of Ross was likewise of the

opinion that there was physical deterioration among the people." (Par. 407).

That the human race is degenerating is becoming evident to all intelligent students of sociology, and the cause and cure of this deteriorative tendency are being made the subjects of frequent research and discussion. A late number of the *British Medical Journal* (October 9, 1909) contains a summary of interesting researches recently carried on by Ethel M. Elderton, a Galton research scholar, for the purpose of determining which is the dominant influence in this degenerative tendency,—heredity or environment. Miss Elderton's study inclines her to the opinion that heredity is decidedly the most influential factor. She finds that weakly and defective children are the offspring of weakly parents, and that the deteriorated type of human beings is increasing much more rapidly than the stronger types. These facts were elicited as a result of the study of many thousands of families.

Professor Carl Pearson, an authority in sociology, recognizes the rapid increase of "unfit" types of human beings.

It can no longer be said that race degeneracy is simply a bugaboo created by pessimists and alarmists. Pessimism is unquestionably a paralyzing force which has no place in a progressive age, but excessive optimism may be equally detrimental to progress. The marvelous discoveries in relation to the causes of disease and the means of prophylaxis which have been made within the last half century, and the great improvement in the average length of life which has been shown as the result of the practical application of these discoveries have led to a feeling of security and satisfaction in relation to the physical well being of the race which is not justified by the real facts which are revealed by a deeper examination of the question.

Former President Roosevelt has frequently called attention to the danger of race suicide. In an article in the *Outlook* for April 8th on Race Decadence, Mr. Roosevelt says: "We can say that, if

the processes now at work for a generation continue to work in the same manner and at the same rate of increase during the present century, by its end France will not carry the weight in the civilized world that Belgium now does, and the English speaking peoples will not carry anything like the weight that the Spanish speaking peoples now do, and the future of the white race will rest in the hands of the German and the Slav."

The fact that the skull of Pithecanthropus, the ancient skull from Java, approaches in type the skull of the ape, and that the skulls of cave dwellers have similar characteristics, have made us complacent in the thought that we are steadily advancing; but the discovery of the skeleton of the Galley Hill man, supposed to be 170,000 years old, gives the question a new aspect. A careful examination shows this ancient skull to possess characteristics identical with those of the modern Englishman.

In his haste to become civilized, man has neglected to povide compensations for the departures from normal conditions of life which civilization necessarily involves. We need not return to savagery to be healthy, but we must see that the air we breathe is as clean as that which the savage breathes, that the food we eat is as wholesome and pure as the water we drink. We must give our pale skins more contact with sun and air, and must keep the inside of our bodies as clean as the outside. We must cultivate clean blood, instead of blue blood. Society must estabiish laws and sanctions which will check the operation of heredity in the multiplication of the unfit. Eugenics and euthenics must become dominant matters of study and concern. We must cultivate health instead of cultivating disease, as we have been doing for 6,000 years or more, and must rally the moral and social forces of the world to labor earnestly for race regeneration. Thus only may we hope to stay the tide of degeneracy which is rolling in upon us and avert the race extinction which is staring us in the face.

LECTURE 4o.

September 4,I9II.

Sunburn-No white cows in tropical countries-protecting the brain 2.

Circulation,poor 4,5.

Toxemia 6.

Selling birthright for a mess of potage 7,8.

Dietetics-Dr. Hall.

Diet of animals 8.

" " monkeys and man 9,Io.

" " baby Io.

Taking up his belt-J.H.K. II.

Indian doesn't eat every day II.

Stored up energy II.

Dr. Tanner II.

Appointing time to die II.,I2.

Insomnia,wet stockings for (German method) abdominal bandage I2,I3.

Pepper,red (Exper. by Voix)I3,I4.

Gin-liver-arteriosclerosis I3,I4.

Neurasthenia-broken-down body,run-down premises,bankrupcy I6.

Surplus of vitality I7.I6. (Illus)

Architect's margin of safety I7.

Taking care of the margin of safety in the body I8.

Tobacco I8,I9.

High school girl I9,2o.

Blood,to increase 2I.

Exercise 22.

Stagnamt water 22,23.

Extract of horse 23.

Active man a clean man-sedentary man 23.

Exercise for chronic invalid 23,24.

Putting on the new man of health 23,24.

L E C T U R E 40.

1 613

infantile paralysis 27

QUESTION BOX LECTURE

At the Sanitarium Parlor, Battle Creek, Mich., Monday, September 4, 1911, at 8:00 P. M.; by

J. H. Kellogg, M. D.

Lecture 90

Tables & factors blood pressure 2
Paragraph 5
High school girls 19
Exercise 22
Clothes 25

Question. What is the benefit of blue glass?

Answer. Some of you perhaps remember about twenty-five or thirty years ago there was what was called a blue glass mania that spread about the country,--blue glasses in windows everywhere, and wonderful cures were claimed to be effected by means of blue glass. People were cured of consumption, Bright's disease, hip joint disease, and all sorts of troubles. The editor of the Popular Science Monthly said that the function of this blue glass mania was to test the length, breadth and thickness of the foolishness of the nation; but there was really something more than that in the blue glass. Under the influence of the blue glass, a great number of people got into the sunshine who had been living in the shade, and if it had not been for the blue glass, they would never have gotten out of the shade. Now, there is another efficacy in the blue glass and that is to shut away certain of the sun's rays. When the light shines through a blue glass the heat rays are filtered out, and some of the light rays; but the actinic rays, that is the photographer's rays, the chemical rays only pass through the glass, and so these rays are still there to produce some effect. Now, the heat rays of the sun produce only the ordinary effects we get from ordinary heat with this exception that the heat rays pass through the skin; the luminous heat rays from the sun pass through the skin, penetrate the skin, whereas the actinic rays or the blue rays, the violet rays pass only in a very very little ways and influence only the skin itself. They produce a chemical effect. The blue glass ray, the blue ray, or the violet ray, the actinic ray of the sun that produces the sunburn, has a chemical effect. (Sunburn really is not a burn at all; it is a poisoning, or erythema produced by the actinic rays of the sun, and there

is some practical effect about it. In tropical countries you notice, if you know anything about that, you never see white cows. They don't have white cows in tropical countries, because they suffer so much from sunburn; and a cow that is spotted white and red will be sunburned on the white spots and not on the red spots. That is the reason why the aboriginals of all hot countries are always dark skinned, and the dark skin is for the purpose of protecting the body from the excessive influence of the actinic rays. I was very much amazed a dozen years ago in traveling in Egypt one day to see a woman walking ~~along the road~~ alongside the Nile, on a hot day, with very little clothing about her body, just a little, thin, single garment; but about her head she had an enormous great red blanket almost as big as a wash tub, only upon her head. With the heat of the sun beating down upon that blanket, I thought that woman certainly would die of over-heating, but on inquiry I found it was protective, that hot red blanket was for the purpose of protecting her brain. Her black hair was not sufficient; it needed the red blanket in addition. It is the custom there for people to wrap up their heads very heavily to keep away the sun's rays. It is these actinic rays that produce sunstroke; so a dark hat or a white hat is most likely to protect one from sunstroke. The blue glass has no special curative power; it simply modifies the sun's rays simply by shutting away the heat rays of the sun.

Q. Please explain the difference between systolic and diastolic blood pressure.

A. Diastolic pressure is the pressure which exists in the blood vessels between the beats. The systolic pressure is the pressure which is found in the blood vessels at the end of the heartbeat. The heart is a pump, and it forces blood into the blood vessels and, of course, raises the pressure at each beat. The blood vessels are distended. Of course the arteries are leaking out at the far end all the time. There is almost no pressure at all in the veins. In some places there is actually negative pressure, or the very opposite--a slight suction in some parts of the body. All the pressure is in the arteries. Near

the heart the pressure is greatest. At the far end of the arteries, where the blood is passing on into different portions, the pressure is xxxxx low and it falls; so there is always pressure in the arteries, because the stream is flowing on all the time. Between the beats, the pressure is known as the diastolic pressure. That ought to be about sixty to eighty. The systolic pressure is the pressure at the close of the beat or during the beat, and that should be about 95 to 105 or 110. Now, you know what your blood pressure is. If your systolic pressure is down to eighty or sixty that is too low. If your diastolic pressure is up to 100 that is too high. If the systolic pressure, that is the highest pressure, is 130 or 140, that is high blood pressure, and that means you are getting old too fast; that means the arteries are beginning to harden; perhaps they are only in a state of spasmodic contration, and the process of hardening has not yet begun, but it will begin pretty soon. It is very important to know the things that produce this high bloodpressure because high blood pressure wears thebody out very rapidly. You know how it is with the pump. A pump that has to work against double pressure will wear out four times as soon as if it only had its regular work to so,--four times as fast when it has to do double duty. If the blood pressure is high, the heart is working too hard, wearing out too rapidly, because it has had too much work. If the pressure is 200 when it ought to be 100, the heart has to do four times its normal work. So it is very important to get our blood to circulate at just as low a pressure as possible. The blood pressure is never any higher than it ought to be. You may be anxious to get the blood pressure down, but you should not be so anxious that you will get it down by pernicious, artificial, injuricus means. It is very easy to lower blood pressure. I remember some time ago I was called up stairs to see a gentleman, and he said, "Doctor, what is the matter with me?" And I saw something was the matter with him. His lips were blue, his face was ashen, and he looked as though he was going to die right away. He said, "Doctor, I can hardly breathe; I feel as though something awful is going to happen to me. What is the trouble?" I

said, "What have you been doing?" "Oh, nothing, nothing, nothing at all. I have had a headache, and I have been taking some acetanilid pills for my headache." His heart was nearly paralyzed. He had taken several of these acetanilid pills and his heart was nearly paralyzed. Now, there are a great many drugs that will bring down the blood pressure. That is the reason why the lips get blue. If the lips are blue, it is because the blood pressure is too low for that person. I saw a man a while ago with a blood pressure of 200, but his lips wereblues. Two hundred was not enough to circulate the blood through his contracted arteries you see. Hex needed higher blood pressure yet, and the first thing I did for that man was to do something to raise his blood pressure, to increase his blood pressure, because we must have blood in the brain, and in the heart, liver, kidneys and other organs. The thing we need to do is to remove the cause of hgh blood pressure, to open up the arteries, kexxx lessen the contraction of the arteries, and absorb, if we can, the exudaes in the arterial walls so as to lessen the hardening there.

Q. Does a gain in flesh in a person who is under weight xkxxyxxkx and is under treatment mean an improvement in health?

A. A real gain in flesh in a person who is under treatment and who has too little flesh is almost certainly an indication of improvement. It means improved nutrition.

Q. What is the cause of poor circulation?

A. Now, it depends upon what kind of poor circulation you mean. I met a man some time ago whose hands and feet were very cold, and he said, "Doctor, what shall I do for my poor circulation." Now, the thing I told him was to lie down and keep still. He had been moving about exercising, and the more he exercised the colder his hands got and his feet. He was quite comfortable when lying still in bed, but when he went to exercising about, he got cold. Now, the reason why that man's circulation was bad, why his hands and feet were cold was that he had a prolapsed stomach and bowels, very loose abdominal muscles, and when he was

on his feet, the bowels and the stomach dropped down, filled up with blood, and the blood went away into his abdominal cavity and he didn't have enough blood to keep his hands and feet warm. He had enough to go around, but when it accumulated in his abdominal cavity as it did when he stood up, there was not enough to go around, and the blood accumulated in his abdominal cavity; there was a relaxed condition here, and he didn't have enough to supply his hands and feet, so there was contraction of the arteries of the hands and feet. That is the sort of trouble some people have after dinner. A great many people note that their hands and feet get cold after dinner and after eating. Why is that? The same thing. The stomach, liver, and other vital organs of the body are busy digesting food, and the accumulation of blood in those parts of the body is so great that there is not enough to keep the hands and feet ~~warm~~ warm, not enough to supply the hands and feet, so there is contraction of the artries there.

Q. Are the nerves ever responsible for such a condition?

A. Yes. Sometimes irritability of the vasomotor nerves produces spasm and contraction of the blood vessels. That may be due to poisons circulating in the blood absorbed from the colon. That is a very common cause. Persons who suffer often from sleeplessness, can not sleep, ~~xxix~~ not because there is too much blood in the brain, but because the brain is irritated, and for the same reason the arteries and hands and feet and limbs are irritated by these poisons circulating in the blood which cause spasm in the vessels so there is not enough room for the blood.

Q. Will the sunbath produce as much benefit as the arc light treatment?

A. Yes, the sunbath is just as good as the arc light treatment, and better,--if you can get it at the right spot where you want it. The arc light is simply a sort of localized, artificial sunlight. It is just the same as the sunlight, it is a little more intense than the sunlight. You can sunburn with the arc light just as readily as with the sunlight, but the arc light is no improvement on the sunlight,--simply a modification of it.

Q. Is the chewing of gum an aid or a hindrance to the digestive process?

A. Well, the only excuse for chewing gum is if one has forgotten to chew his dinner, then it is permissible for him to retire to some secluded corner and chew gum for penance; but under no other circumstances do I recommend it.

Q. Explain pellagra.

A. I can not explain pellagra. I do not know what it is. I have an idea that pellagra is an autointoxication, an intense toxemia due to poisons absorbed from the intestine. My reason for believing that is that the only success we have had in treating pellagra, and we have succeeded in helping a number of cases, has been in treating the patient as a very pronounced case of intestinal autointoxication, and so endeavoring to change the flora of the intestine, to introduce a friendly sort of germs that will protect the intestine against the germs that have been growing there and producing pernicious poisons. A lady went home a few days ago that had spent several weeks with us here who when she came weighed seventy pounds. She had pellagra in a very pronounced form. Her hands from the wrists down were raw, they looked like beefsteak; they were in a state of very, very pronounced characteristic eruption. The mouth was very sore, the bowels were very loose, and she was very much emaciated and very depressed indeed. She went away just a few days ago weighing 99½ pounds. She never had weighed but 112 lbs. in her life, and 100 pounds was the most she had weighed in a good many years, but she went away apparently perfectly well, strong, healthy, rosy cheked, with a good color and not a single symptom of pellagra; but I do not know that she is permanently cured. She may have a relapse. Persons who have suffered from autointoxication of any sort are very subject to a relapse. There is a man dying upstairs this minute that we have done everything we possibly could for; we have done everything we could for this man to save his life, and we could not. He arrived here at the institution a few days ago. I tell you of this case as a warning. One year ago this man was brought here with an enlarged liver, was thought to have cancer of the stomach. He didn't have cancer of the stomach, but had an

enormously enlarged liver. We found out right away that his trouble was chronic toxemia from intense autointoxication, so we threw away his meats, everything of that sort, gave him quantities of water and got a new sort of flora established, a new set of bacteria introduced into his intestine, and in a few weeks he went home apparently well, in excellent health. He was an elderly man, about seventy years of age, rather feeble for his years, and he had been lying in bed, given up to die for months before he came here. Some friend who had been here induced him to come, so he was brought here with an ambulance. Now, I said to this gentleman when he left, "You must never touch meat again as long as you live, never touch it; you will be right down in the old condition again just as sure as the world if you do." Well, he came back a few days ago, and I saw him, and the first word I said to him was, "I am afraid you have been backsliding." He turned his face to the wall and didn't say a word. His wife stood by and she said, "Yes, Doctor, that is just it. I watched him as sharply as I could, and didn't let him have a bit of meat, but two or three weeks ago he ate some mutton and the next day down he was, and here he is." That simple thing was sufficient for that man's downfall. The mutton he ate immediately began a putrefaction in the intestine and it set to work again those unfriendly germs, and lit up a fire that was almost extinguished, and when he got here, it was too late to do him any good. I suppose the poor man will be dead before morning.) Now, it is a terrible thing to throw his life away, isn't it? (Isn't it a terrible thing to throw one's life away. And how many people there are who sell their birthright for a mess of pottage. How many there are. Esau is held up as an example to the whole world, for he sold his birthright for a mess of pottage. What is your birthright, my friends? It is the right to live, to enjoy good health, splendid health, and a long, useful life. That is the birthright everybody has, and nobody can take it away from you but yourselves. You can not yourself unless you choose to; but the majority of people sell their birthright, throw away their opportunity to live and enjoy this splendid world of ours just for a mess of pottage, for a

a beefsteak or a chop, for a piece of dead beef perhaps. It is time that we began to learn something about dietetics. I was reading an article in Harper's Monthly not very long ago by Dr. Hall of Great Britain. He is professor over there of chemistry or something else; he is superintendent of one of the government experiment stations, so you know he is a man of some standing. Perhaps some of you read is magazine article in Harper's Monthly on vegetarianism. I do not often talk about vegetarianism because I do not believe in vegetarianism, in its strict sense. Vegetarianism means we must not under any circumstances eat anything but vegetables. That is the literal interpretation of the word. I believe in abstaining from flesh. I am not a flesh eater. Babies must eat animal food, and I don't go quite so far as some people I knew of in Las Cruces New Mexico who tried to raise the babies on the milk of unripe corn. They kept one crop coming after another coming along to feed their babies on, and they wanted me to help them out with instructions how to raise babies on vegetable milk.) We are not absolutexy vegetarians, don't believe in that entirely. I believe in abstaining from flesh food, not altogether from sentimental reasons, by ary means, but because of scientific reasons. Now, Dr. Hall said that the subject of dietetics is a most difficult one concerning which at the present time we know very little. That is what this eminent doctor said--that dietetics is a subject concerning which we have very little knowledge--a difficult question concerning which we have very little knowledge.. Now, just think of that my friends,--dietetics is a difficult and abstruse question. Why, when a sheep is born into the world it doesn't have to go and ask a professor of dietetics what he should eat. Is the subject of dietetics for sheep an abstruse question? Why, what would all the sheep do if they were in ignorance about what they ought to eat? And how about the cows and the horses, the mules, donkeys, chickens, and even the pigs? They all know what to eat. Man is the only creature, apparently, that is at a loss to know what to eat. Why, a grasshopper, or an ant, or a fly knows what to eat. The smallest creature, every animal that lives knows instinct-

ively what to eat. It has an intelligence within it that tells it what to eat. Man seems to be lost in the maze of error. He has been wandering away so far from the right road that he has absolutely got tangled up, and he has not the slightest idea which is the right way. Now, that is what this institution is for, my friends,--to help to point you to the way home. We thik we have found the way in some ways, not because we have discovered it, but because we have found out what was the old way, the old path. Now, this professor said some people thik that because primitive man was not an eater of flesh--they all admit that primitive man was not an eater of flesh; primitive man was an eater of nuts, grains, fruits, and tender sprouts or leaves, just as the gorilla and the chimpanzee is now. But he says because the primitive man was xx not an eater of flesh, that is no evidence that we should not be, because if we want to find out what is the diet of the horse, we watch horses to see what they eat; so if we want to find out the natural diet for man, we must watch men and see what they eat. Isn't that interesting philosophy? He said that whenever we find a widely prevailing practica, that is natural, that is the natural practice. The fact that it is widely prevalent is evidence that it is natural. So it is perfectly natural, normal and proper and wholesome for us to live in houses without any sunshine, isn't it? It is perfectly healthy for us to drink water that is full of typhoid fever germs, isn't it? That is what everybody was doing forty or fifty years ago. It is perfectly natural to cultivate all these unhealthy and unnatural practices because they are almost universal; so they must be all right. "Whatever is is right." That is the philosophy,--"whatever is is right" in matters of diet. Now, if you should go to the London Z oo and see the superintendent of the London Zoo, and ask him what is the proper diet for a monkey, a gorilla or chimpanzee, he would tell you right off. He would say, "Why, we feed our chimpanzees lettuce, oranges, bananas, and bread." That is what we find they do at the London Zoo. That is what they always give the chimpanzee and orang outang,--simple foods, but make a little variety; sometimes apples instead of

oranges, and sometimes a cocoanut,--fruits, grains and nuts. That is the diet of the chimpanzee and the orang-outang. That is the diet they choose for themselves out in the forest where they live.' Now how did the monkey or chimpanzee find out what to eat? There didn't any professor fx of dietetics tell him. He didn't find out by experiments in the laboratory. He sat down at the feet of some wise,old chimpanzee and learned of him. That is the only way in the world he can learn about the chimpanzee died--was from the chimpanzee himself. Now, if a man wants to learn what to eat, he goes to a profesor of dietetics in some great collee, and he says, "It is a very difficult and abstruse subject; we don't know much about it." Now, it is just as easy to find out what man ought to eat as to find out what a monkey ought to eat. We can find out what the primitive man ate just as we find what the primitive monkey ate. What the primitive man ate is just as natural for man now as it was for primitive man then. He had an instinct which told him what was right just as the monkey and the horse and the cow and the sheep have. But the modern man has smothered his instincts, has indulged in all sorts of absurd, unnatural foods and condiments until he has destroyed his native instincts, and no longer knows what is good for him. Now, when a baby is born into the world, about the first thing it wants is something to eat, and it has an instinct that tells it all about how to eat. The baby does not have to be taught to eat. It knows what is good for it, and it knows when it needs food, makes its wants known; but when this baby gets grown up, gets to be a little older, gets to be ten years of age, or twenty years old, gets to be an adult, then it doesn't know anything about it.Dietetics is a very abstruse and difficult subject of which we know very little. Now, why is it the adult does ot kow as much as the baby does about dietetics? Simply because we have been led astray by our customs and prevailing habits. So we must begin to find our way back to natural ways, and when we once find the right way, we must stay in it. You have been hearing here about beefsteaks, and you think it is a fad of mine; you have been hearing about mutton chops and all these other un-

wholesome viands I have been telling you the evils of, and yet you say, "When I get home, I will have a nice beefsteak." I was very much encouraged as I was coming down the hall to tell you the same old story once more, by a lady who said, "Doctor, I have been here the fifth time, and now for five years I have been living right up to the Battle Creek Sanitarium principles; I have not eaten any meat, but have been living right up to ~~kkx~~ it for ten years," and I have been trying it for 45 years, and it agrees with me first rate. A gentleman said to me about an hour ago,--I happened to remark that I was going to get some breakfast pretty soon, that I had a little fruit for breakfast, hadn't had anything since,--"Don't you feel awfully faint?" I said, "Now, I don't feel faint. I simply take up another inch in my belt, and I am all right. I don't have to eat anything now, or tomorrow. The Indian doesn't eat every day if he doesn't want to. He eats every day or every other day as he finds it convenient. This thing of going to pieces if we don't get our dinner just on time, if we don't have something to eat just as soon as we want it--a lot of people are in just that condition--go all to pieces--it is perfectly absurd. We ought always to carry with us, stored up under our skin, a store of energy big enough to last us a week. Everybody has got it if he is in a state of health. Everybody has got that much energy. Why, here is Dr. Tanner who fasted six weeks, 42 days, and when the fast was over, he said to me, The first thing I did was to walk downtown and buy a big watermelon and eat it on the spot." He ate the whole watermelon on the spot, and it didn't do him any ~~xx~~ harm either. He could not have done a better thing. There was food already prepared for assimilation at once. I don't suppose he swallowed all the wood of the watermelon. When we find the right way, we are under obligations to follow it. Now, there is not a man or woman in this room tonight but what, by careful living, can prolong his life, can add years to his life. Well, we say we are going to die at our appointed time, we suppose, any way. Yes, but we can have something to do about appointing the time, you see. That is perfectly true. We are going to die when the time comes,

but we can have a good deal to say about when that timex shall be. We can invite the time, we can hasten the time, or we can postpone it. A man can shorten his life by cutting his throat, or tying a noose about his neck and suspending himself from a rafter, or he can shorten his life by sucking away on the end of a cigar; he can shorten his life that way. It is suicide in both cases. Abraham Lincoln, you know, said if he had a son who would smoke cigarets and part his hair in the middle, he would maul him to death with a squash. That was his idea of cigurets and cigars. We must live up to all the light we have. When we learn the right way, let us follow it.

Q. Is flaxseed a good laxative?

A. Not a very good one, but it is slightly laxative.

Q. What causes fever blisters?

A. Infection. When the eruption of herpes exists, it is because the power of the body to resist these germs is lost, and they are getting a foothold.

Q. What are cold bandages at night good for?

A. To put you to sleep. That is what they are for--to put you to sleep. It is an old fashoned remedy that has been in use for centuries, in Germany, for hundreds of years,--to put on wet stockings, then put on dry woolen stockings over them; simply wet linen stockings slipped on the legs, then some dry woolen stockings over them. It is a capital means of inducing sleep. If you find sometimes you can't sleep, instead of taking a dose of sleeping powders, or sleep producing medicine, try that; put on the wet and the dry pair of stockings and see how quick you will go to sleep. Now, what is the philosophy of that? The cold water is quickly followed by reaction, and the reaction dilates the blood vessels, so the blodd flows into the parts, and that draws the blood away from the brain, don't you see? Or if the bandage is put upon the abdomen, it has the same effect there. The abdominal vessels are filled with blood, and that relieves the head, the brain. That is the reason why eating at night gives some temporary relief from sleeplessness. Generally one feels drowsy after

eating, and you may go to sleep after eating a hearty supper; or getting up in the middle of the night, one may eat a little something, and he will feel a little drowsy afterwards. That is a very bad plan. The reasonwhy it puts you to sleep, benumbs you, is that it diverts blood ito your stomach and so draws the blood out of the brain; but after the digestive process gets to going, and when the digestive mills begin to grind, they make so much disturbance in the body that the brain can not rest. So after two or three hours of very unrefreshing sleep, you will wake up and can't sleep any more. Now, the moist abdominal bandage draws the blood into the abdomen and relieves the brain in just the same way, and without any bad after effects.

Q. Is red pepper injurious?

A. Suppose you put a little in your eye, what would it do to it? Did you ever hear of people having pepper ~~in~~ put in their eyes? Now, what the pepper does to your eyes, it will do to the interior of the body. When the pepper is in the eye it is still on the outside of the body. The eye is covered over with a protectiv covring, but when the pepper gets inside and is absorbed, taken into the blood, then it comes in direct contact with all the cells of the body, and produces irritation. Red pepper has been proven to be a cause of arteriosclerosis. It causes hardening of the arteries and hardening of the liver. Voix, an eminent French investigator found by experiments which he conducted with great care several years ago, that pepper has six times the power to make gin liver that gin itself has. I will never forget a gentleman we had here from Texas some years ago. He was chairman of the board of trustees of a young ladies' seminary, so when I examined him and found he had a very large liver, I didn't like to ask him if he was in the habit of taking gin, because I thought he would feel insulted, so I tried in eery way I could to find out what his early habits had been, and finally I had to ask him straight out, "Did you ever in your life make use of alcoholics?" "Oh, no, no, never." "How about tobacco?" "Oh, no, I never smoked in my life." He was just the right sort of man to be on the board of trustees of a young ladies' seminary, you see. I could not account for this difficulty of

his. Finally I recalled that he was from Texas and that it was next to Mexico, and I said, "What part of Texas do you lie in?" He said, "I live right down close to the line." I said, "Do you ever eat red peppers? I have noticed that the people on the other side of the line were very fond of peppers." By the way, I tried one of those red peppers myself once; I was eating at the table with a family of Mexicans, and they all seemed to be enjoying their red peppers; so I thought perhaps they were different from any that I had ever seen before, and thought I would take a taste myself. And I cut off a very tiny bit, not so big as a grain of wheat, just the merest, little speck, and I didn't get over shedding tears of regret for some time. I said to this gentleman, "Are you fond of peppers?" "Oh, yes, yes, I eat a great many peppers. I eat two good big peppers at every meal", and that made six big red peppers every day. He said, "I deal in peppers, import them from Mexico." Now, that was the cause of this man's big liver. He said, "Doctor, I have been here a cople of weeks, and I have never tasted anything yet. I do wish I could get hold of something I can taste." The food absolusly had no flavor to him at all, because his tongue had been so blistered by those red peppers that his normal, natural gustatory sense was entisely blunted. Well, this poor man got better, but for a while only I am sorry to say. He went home and in a few months he was dead, because his liver was wrecked, his liver was simply wrecked, and it was red peppers that did it.

Q. Dr. Alexander Bryže says he is a low protein feeder. If he is mostly skin and bones as a result of the low protein diet, why does he recommend such a diet, and why do you?

A. Well, Dr. Bryce is not skin and bones as a result of the fleshless diet any more than I am. I have been tring it longer than he has. I don't think he has been tring it more than three or four months. He was here just about a year ago, and it took me at least eight or nine months to convert him; and he has got only fairly converted, and fairly started, and he is gaining flesh, so he wrote me, and is improving. He is a doctor himself, and he was a

great skeptic, and if he found this low protein diet was doing him any harm, he would be certain to make xxxxxxxx a note of it, because he has been a very great skeptic, one of the most difficult cases I have ever had to deal with. He admitted the scientific facts, but he said, "Whenever I go on the low protein diet, I don't feel so well; I drop off in strength;" but he has discovered the whole trouble was he did not adjust his diet properly, did not eat the right things, and he has gotten over being scared, and that has a good deal to do with it.

Q. Does a neurasthenic ever fully recover?

A. Yes, he can recover and can keep recovered just as long as he keeps right to the line, but just as soon as he goes outside, he will find himself just as bad as ever. He can get down very far in a very short time. You see a person does not get neurastheria, and he does ot get any other serious chronic ailment of any kind until his body is broken down. Now, to use a very simple, familiar illustration, suppose you are going alongthe road, and you pass premises where the front gate is off the hinges, the house unpainted, and the fence is down along the road, and the roof of the barn is falling in, what would you say? If there is anybody living in that place, you would say that man must be bankrupt, must be in a receiver's hands, because if he was not he would be taking some of his money and keeping up repairs. He would have his front gate on its hinges, and his fence up, and the house painted, the roof repaired, have things shipshape about his premises. When things are going down that way it is pretty good evidence that that man's bak account is exhausted, he is out of money, has no money with which to make repairs. Now, my friends, it is exactly so with the body. The body holds up as longx as it can. If a man smokes, he appears to be all right, goes on from day to day, and month to month, and year to year, taking this poison into his body, and he seems to be all right. Why? Why, because he still has a bank account. The case is like that of the boy who perhaps inherited a million dollers from his father and didn't kow how much. Now, of that million dollars, the sum of ten thousand dollars was entailed so he could only have the

income from it. Now, he spends fifty thousand dollars for race horses, five thousand dollars for bets, ten thousand dollars for something else, and so on until by and by he sends a check for fifty dollars to the bank to pay his hotel bill, and it comes back to him. The bank says, "You haven't any money here." "How is that?" he says, "I have been sending five thousand dollar checks and fifty thousand dollar checks and you never objected to cashing them. Why don't you cash this $50 check?" "You haven't any money here." You see he didn't know his habits were doing him any harm until he was bankrupt. Now, it is exactly so with the body. Every man inherits from his ancestors--every man, you know, is a chip off the family block--not the father or mother block, but the family block. We are at lsast just as likely to take after a grandfather as we are after father or mother,--grandfather or grand mother. Half the children in a family always take after the grandparents, and half of them take after the parents. That is the way it usually goes. We are a chip off the family block, and somebody in the family block somewhere had a good constitution. A grandfather or a grandmother had a good strong constitution, so we have got one. Now, that constitution is a capital of strength. It consists in a surplus of vitality. For instance, take the lungs; they hold 300 cubic inches, and we are able to bring in about thirty cubic inches in an ordinary breath. Then if we stretch the lungs, and take a great, deep breath, we can get in 100 cubic inches more; and if we breathe out as hard as we can, we can send out an extra hundred cubic inches of air. We can breathe out and in 230 cubic inches which is ten times as much as we ordinarily use. We ordinarily breathe only about 25 or 30 cubic inches, while we have capacity to breathe ten times as much. Why do we have that surplus capacity? Because sometime we shall want to run upstairs, or we shall want to run to catch a trolley, and we get pneumonia, and one lung is all stopped up, and we must work the other lung hard enough to keep alive. It is just so with the liver and the kidneys. The kidneys can do twenty times as much work as is ordinarily required of them. The skin ordinarily eliminates through perspiration an ounce and a half of sweat in an hour; and yet it is possible for the skin to

throw off twenty ounces of water in an hour. If one is perspiring very freely on a hot day and working very hard at the same time, he can throw off fifty ounces of perspiration in an hour, but the ordinary rate is only an ounce and a half; so the capacity is more than thirty timesx as much, you see. Now this surplus capacity we have is provided for emergency. Now, when a man is violating the laws of health, when a man is smoking, he is taxing his heart capacity. The heart ordinarily beats sixty to seventy times a minute. I remember once finding a heart going at the rate of 300 beats a minute, but I never saw a case in which the heart was beating fast while the pulse was slow. One man did tell me he had awful palpiation with his heart, that it was just running away, but at the same time a very slow pulse. Now, you never get that sort of case, and you see why. Now, this great capacity is there for emergencies, you see. Here is a man smoking. That weakens his heart. He can go on smoking just as long as the heart has surplus power, you see. By and by all that emergency power is used up. Now ~~you know~~ suppose here is an architect calculating the strength of a timber. The architect does not figure up just the weight that is to be put on that timber; that it is going to have just twenty tons resting on that pillar, and make the pillar just strong enough to hold up twenty tons. Not by any means. He must have a margin of safety. He finds that pillar must hold twenty tons, and then he multiplies it by five or ten. So he has a great margin of safety. If houses were constructed so that they were barely able to hold themselves up, the first wind would blow them over. So it is with the human body. It is made with a large margin of safety, every part of it. Now, when a man is violating the laws of life with apparent impunity, he does not think he is getting any harm, but he is simply drawing upon his margin of safety, and he does not know the thing he is doing is doing him any harm until his margin of safety is consumed. ~~That is a case in which~~ Suppose dry rot has got into this timber. This timber is perhaps able to hold up 100,000 pounds. The dry rot reduces this ability so that the it gets down to forty thousand pounds, and then the floor begins to sag, the building sags;

it gets down to twenty thousand, then to nineteen thousand and down the whole thing comes. That is the way it is, my friends, with every one of us. We are using up the margin of safety; and it is because we still have a margin of safety that we are alive. We are using it up by wrong habits of life, and just as soon as it is consumed in any important particular, just as soon as any important pillar breaks, then down the structure comes. It may be the heart, it may be the liver, it may be the stomach. We can get along without the stomach better than without any other; it may be the brain, the spinal cord, the kidneys; it is likely to be the heart, liver, or the kidneys or blood vessels. That is where the mischief is, and just as soon as that margin of safety is reduced too much, down we are going to come. Now, while you have got this margin of safety, let me appeal to you, my friends, take care of it, be saving of it. Don't throw it away. A man sits down at a Christmas dinner, or Thanksgiving dinner, and thinks, "Now, just this once I think I will indulge, just this once." Now, you don't approve of doing this regularly every day, but just for today, you thak you will just have this one good dinner. Now, that may take off years from your life. That one big dinner may dull your liver very much, or kidneys, and may do it a damage that you can never recover from in the world. Every such indulgence simply cuts off a slice off your margin of safety, and when that is gone, you are gone too. So the thing for one to do who wants to live long and well is to take good care of his margin of safety, take care of it as you take care of a weak heart, or of the most precious thing you have got, because that is the thing that keeps you alive. When a man who has been smoking gets to the point where he finds out that smoking hurts him, he is bankrupt. So many men have said to me, "When I find out that tobacco hurts me, I am not fool enough to do it; when I discover tobacco is hurting me, I am going to stop right away." But that is too late; he is wrong; he is ruined then. If he still had a margin of safety you see, the poisons would be taken care of, and he would think he was

all right and no harm was being done

Q. Is it a good thing to have the pores opened by hot fomentations and hot baths, and close them by an alcohol rub? or an ice rub?

A. Now, the pores are not such dangerous ~~glxxxdxxs~~ organs many people suppose. Cold does not et in through the pores. Most people have the idea that there are a lot of little mouths on the surface of the skin, and if they are left open, some cold is likely to creep in through these pores. There isn't any such thing happens at all, my friends. That is all moonshine and nonsense. The thing that happens when one takes cold is not a closure or opening of the pores; it is the blood vessels, not the pores. You can ot close those pores by anything but varnish. Powder of anything of that sort could not stop the pores. It lies on the top and there is no powder that could be put on the surface of the skin but would be lifted up by the pressure of the current of blood.

Q. What is the principal cause of pimples on the forehead?

A. They are due to lowered resistance generally; generally due to poisons absorbed from the colon. I have often seen these break out after the use of strong butter and animal fats,--verylikely to do it, because these promote intestinal autointoxication.

Q. How should children be dressed for outdoor sleeping?

A. Dress them up as though they were going outdoors for a ride, perhaps, only with different sort of garments. They must be dressed up so they can ot possibly get themselves uncovered or exposed, because the children should not be cold. Nobody sleeping outdoors should expect to be cold. It is the breathing cold air that is of advantage.

Q. How much sleep does a highschool girl require?

A. About ten hours. The great trouble with high school girls is that they spend so much time reading novels; that is the principal trouble, and perhaps getting into society when they get along the latter years of their course,--go to theaters and moving picture shows, and such things; these things do the high

school girls a great deal more harm than the high school does. It is not the study in high school, climbing upstairs at all, that hurts the high school girls. It is wrong diet, reading story books at night, and not enough outdoor exercise. The hgh school girl should be reqired to wear proper tlothing, and to sleep nine or ten hours at night, to practice in the gymnasium, to swim two or three times a week, and there would not be any trouble about high school girls breaking down from study. It is not study that does the harm.

Q. What is the best way of reducing flesh?

A. Don't eat so much. Did you ever notice that these people who are so very fleshy always have thin arms, and the calves of the legs are not large and fat? The fatness is right around this part of the body. Too much sitting still is one thing the matter with most fat people. There are some persons who are over-fat by heredity. We sometimes see such people. The fat is well distributed in such cases usually. But persons who are fat in sedentary life, eating too much, are fat about the body, the abdomen and hips, are excessively fat,--you don't find too much fat about their arms. I made a lady angry the other day, and I think if I hadn't dodged, she would have struck me. She came to me and said, "Doctor, what is good for a person who is too fat? Won't you tell me something to reduce flesh?" She thought I was sending out pills, etc,--"are your pills really good for obesity?" So I felt a little bit stirred up in myself to think I sould be mistaken for a person who is peddling pills for obesity, a quack; so I said, "By the way, have you noticed how small your arms are? Your arms are not fat at all." "No," she said, "I haven't noticed it, but it is a fact, isn't it? No, my arms are not fat." "Your legs are not fat either, your feet are not fat." "Well," she said "why is it? Why do you thik it is?" I said, "Well, your feet have so much work to do carrying you around, and your hands have so much work to do in going from the table to your mouth." Well, I had to dodge as I told you, and get away as qick as I could. Now, as a matter of fact, persons who are suffering from obesity, the real bad cases, are cases in which

there is a deficiency of the activity of the thyroid gland, so there is an insufficient consumption of fat; there is a predisposition to take on fat, even though the amount of food taken is not very large; even though it is only reasonably moderate. Now, the remedy for this class of cases is to increase the thyroid gland's activity. Such persons are never cured by starving for any length of time, but they must be benefited by improving the activity of the thyroid gland.

Q. I am not going to eat meat or eggs when I return home. Will I get sufficient protein from beansx or peas once a day?

A. Now, you don't need even to eat the beans or peas. There is protein enough in potatoes, in bread; there is an excess of protein in bread. Bread is a high protein food. There is an excess of protein, more than anybody needs in bread; so if you eat bread and butter, the potato, and some fresh vegetables, you need not worry about peas and beans and protein; you will get along all right. There is not much danger of making the protein too low; the only danger is making it too high.

Q. What is good to increase blood?

A. There is only one thing that will increase blood, and that is food, food that is well digested, and sunshine. The sunbath is one of the most effective means of stimulating the production of blood. And exercise is necessary. Rest is not the best means of making blood. Some exercise is always necessary. Why? Because the blood is made in the bones. Isn't that a curious thing? That is a fact that has been discovered in modern times,--that one of the functions of the bones is to make blood. The red marrow of bones is for the purpose of making blood; the blood is made in the bones. The red marrow of the bone the function of which was not known until recent times, is now known to be the place where red blood is made; so exercise is necessary, a certain amount of it, to encourage the circulation of the blood through the bones. If we can not have exercise, then we must have massage.

Q. Name a southern winter resort where one can get a good diabetic diet.

A. Now, I don't know of any special place in the South where special attentionis given to that disease, but today anybody can get a good diabetic diet anywhere. It is very easy to supply a diabetic diet. Fresh vegetables of all kinds with the exception of the sweet potato and Irish potato--all other vegetales except those two can be generally taken very well by persons suffering from diabetes, and are especially good for persons suffering from that disease. Then gluten bread and bananas--bananas are splendid, and oatmeal is a splendid diet. Starch is the one thing the diabetic must have, yet starch is the one thing that makes him the most trouble, but he must have it. When the diabetic gets so he can not assimilate starch, he xxxxgxix is going to die; that is the end of him; and the whole effort in the treatment of diabetics is to increase the ability of the diabetic to assimilate and utilize starch. Now, some starches are more readily utilized than others. Oatmeal is the best, bananas the next best, and potatoes the next. Those three are much more easily assimilated by persons suffering from diabetes than any other foods that contain starch in abundance, so they are of much advantage. I have often seen the sugar disappear almost entirely on a banana diet. Those thing can be gotten anywhere.

Q. What causes night sweats?

A. There are various causes. Sometimes the room is too warm. And sometimes the bed clothing is too heavy. Sometimes there is fever in the early part of the night which is followed by reaction with sweating which is cooling off, later.

Q. What is the difference between toxic headaches and migraine headaches? A. There is no difference at all. Migraine is a toxic headache.

Q. Give us a talk on the value of exercise.

A. Well, exercie is one of the things we can not get along without and live. Exercise is life. You see a dancing brook coming down a mountain side, bursting out into sprays, bubbling along down, gurgling as it goes; it is sparkling, clear, pellucid; you can drink the water from it with perfect safety.

That same brook gets down to the foot of the mountain, goes off into the alley, becomes a stagnant pool, and pretty soon it is all covered over with slime and ooze and filth, and frogs croak in it, and all sorts of vermin swarm in it, and it is ill smelling and miasmatic. Now, it is exactly the same water. When it is coming down the mountain side it is active, and when it gets down to the stagnant pool it is inactive. One is the active man, and the other is the sedentary man. Did you ever notice when you got your horse out in the spring, took him out for a drive, that his back was all covered over with frost, and that when it gets dry it is just as sticky as pitch, has an acrid odor, and if just a little gets into your eyes it smarts? I will never forget the sensation that I had once when a boy in currying such a horse. Now that frosty pitch on the horse's back is extract of horse. You never stopped to think of that, did you--extract of horse, of sedentary horse. You drive the horse out half a dozen times and let him sweat every time, and you will see the frost gets less and less and less, and by and by you don't see it any more; the perspiration comes out almost as pure as rain water; it does not leave any sediment behind. That horse's tissues have been purified, and the extract of horse is limpid, pellucid liquid. That is just the difference between the sedentary man and an active man. The active man that takes exercise is all cleaned out, purified by the impurities being brought to the surface and washed away, so the man's tissues are kept clean; his breath is sweet, his brain is clear, and his nerves are steady and strong, and he is a clean man. The chronic invalid especially needs exercise. The only way in which the chronic invalid can ever get well is by being reconstructed; he must be recreated; he must put off the old man of sickness and disease, and put on the new man of health. That is the only way in the world he can ever be cured,--is by being made over, absolutely reconstructed. The only way he can ever have a reconstruction is by getting rid of the old man. We must wear him out with baths and the outdoor gymnasium, and other things, and wear him out; then take the patient upstairs to the dining room, and there is

where we take in the new man. The clean wholesome foods we eat today are walking around and talking tomorrow; the food we eat today tomorrow is transfigured into living, human flesh; and if it is clean food, it will be clean flesh, and will be talking right, and thinking right if it is the right kind of food. During sleep this food is built up into body. The process of repair and recuperation takes place chiefly while we are asleep, but the sleep comes from exercise. The Lord told Adam he must earn his bread by the sweat of his brow. You remember what the Apostle said: "He that will not work shall not eat." Nature says that everybody that will not work shall not sleep. So the man that doesn't work can neither eat nor sleep, you see. So if you want to have a good appetite so you can ~~xkaapx~~ eat well you must work, and exercise. There is no place where you can get so much good as the outdoor gymnsium. You get ~~xkrxdirrrt~~ Dr. Sunshine down there, and Dr. Sunshine can do you more good than any other doctor I know of. We haven't any monopoly of it either. If you get well acquainted with the sunshine here, perhaps you will cltivate Dr. Sunshine when you get home. A lady brought some children to a very eminent French doctor once, three puny little boys, wizened little fellows with pale skins, and she said to the doctor, "What shall I do for my children?" He looked at them a moment, then said very sternly, "Roast them, madam, roast them--roast them in the sun." I saw a couple of gentlemen today who were well roasted, well sunburned. And you will be well recompensed for the ittle inconvenience of sunburn by having the whole skin filled with blood that will be coursing through that skin during the next six months. That is the great advantage of getting well sunburned. It is like a fomentation that will be acting for six months to come, you see. If the physician takes you up for five or ten minutes sunburn, ~~xikk~~ it will do you ~~mxxx~~ good for as many weeks. So there is no disadvantage in it at all, but there is realy an advantage and benefit from it. Don't get scared by that sunburn, even if there is a little blister; it is nothing but erythema, it is superficial. No one ever gets sunburned more than skin deep; it is only the very superficial layers of the skin.

Q. Why do we wear clothes?

A. Only because Mrs. Grundy demands we shall. It is simply custom. The wearing of clothes is the dirtiest habit we are addicted to, positively the very dirtiest habit we cultivate is the wearing of clothes. Did you ever stop to think of it? I never appreciated it until I was down some years ago visiting the Yuma indians of New Mexico and Arizona, and I noticed what fine skins those Indians had. They wore nothing but gee strings, and the skinx was just like satin or silk. Not a pimple could be seen on those splendid bodies. The skin was just as fine as silk everywhere, no eruptions, no pimples, no rheum. Now when we wear clothing, the exhalations of the skin, the impurities on the skin are not dropped off, they are not thrown off or disinfected by the sunshine, but they accumulate in the underclothing, and there they lie next the skn continually, hour after hour, day after day, and so the impurities are absorbed back into the body again, and the skin itself is damaged by contact of those impurities and becomes subject to disease. We ought to xxkx improve every opportunity to get rid of our clothes. A lady said to me the other day, "What shall I do for my boy?" I said, "Fix up a room in the house and turn him loose so he can lie like a squirrel, a room where the sun can shine, and let him live there and grow up naturally." She did so, and in two or three months he was another boy. The con-
skin
tact of the air with the xxx is wonderfully xxxxxxxxx vitalizing. Bengamin Franklin knew that more than 100 years ago. He used to take an air bath every night before he went to bed. He used to sit up several hours after everybody else was qiet, clad in the robes the Almighty gave him, writing his wonderful aphorisms and proverbs. You can find out all about it in some of his autobiographies.

Q. What can one do for a rush of blood to the face or brain, on leaving?

A. Leave it here. Don't take it away with you. You must get rid of it. One of the best things to do is to put your feet in some hot water, and an ice bag at your neck. Hot and cold to the spine is good, but it is most important of all to take care of the colon, for that is where all the trouble comes from.

Q. Why does excessive coffee drinking not affect the healthy Turk?

A. Now, the healthy Turk does not drink coffee. The healthy Turk is the Turkish peasant. The Turks that live in the towns are not healthy. Those Turks that drink their coffee and smoke their long pipes all day, they are ot healthy. They are effeminate and they do nothing; they are waited on by a lot of slaves. The Turk that is healthy is the man that lives in the mountains. And he lives on bulghour. His chief diet is wheat and yogurt buttermilk. He is so healthy that when he falls dead on the battlground, he gets up in a few minutes and fights another battle. During the Russo-Turkish war there was a great deal of surprise at how rapidly the Turkish soldiers recovered. With bullets in their bodies, they retired for two or three days, then were back on the ground fighting again. The general testimony is that Turks are the halthiest people in the world. It is because they are so simple; their diet consists almost entirely of wheat and yogurt buttermilk, and fresh vegetables of which they use a good deal.

Q. What does indol acetic acid mean? A. Poisons absorbed from the colon

Q. What do you wear for sleeping outdoors in the winter time?

A. I dress up the same as though I were going to take a sleighride. I put on thick, heavy woolen garments, stockings, two pairs if necessary, and a cloth boots made from very heavy cloth; very thick robe that comes down to the feet. I have a pocket in each side of my robe, and put oe foot in each pocket, then a hood or long cap and a front piece, a face piece that comes down as far as the nose, and a little further, to shut out all the cold air from your face. If the wind is blowing in your face, you can ot sleep.

Q. Is there danger of infection in the swimming pools here?

A. No, in the first place, every patient who comes here is carefully inspected, and anybody that has anything that could possibly be communicated to anybody else is not received into this institution. I want everybody to know that,--that infectious people are not allowed on he premises, and we do not have them

have them here. If there is any such case, that we feel it our duty to take in, we have them provided for it a distance in some cottage far away, and they are not allowed to come on the premises or to have anything to do with this institution. We do not have one such case in a year, and if we do have such a case, it is under very exceptional circumstances, and they are isolated. Nobody is allowed in the swimming pool or anywhere about that has any difficulty that could in any possible way be communicated. I do not know of any place that is safer on the face of the earth than the Battle Creek Sanitarium, so far as that is concerned, because of the careful scrutiny of everybody who comes here, and the great pains that is taken to protect everybody.

Q. Do you approve of the fish diet?

A. Certainly I do. Fish should eat breadcrumbs, seaweeds, water plants, and things of that sort. That is the proper diet for a fish. I don't believe fish should eat other things, but still we can ot always help it; we have to let them have their own way somewhat. If there is any reference here to people eating fish, then I have to say about hat that fish is the most unwholesome thing you can swallow, because fish decay very rapidly outside of the body, and equally rapidly inside. Fish undergo decay more rapidly than any other flesh.

Q. Is an adult apt to have infantile paralysis?

A. Yes, adults are subject to poliomyelitis as well as infants, although not quite so subject to it. Whenever you hear of a case of infantle paralysis, keep away from it. Don't get in contact with anybody in contact with the disease. It is communicable by discharges from the throat, which is a newly discovered fact, and perhaps in other ways which are not yet fully understood.

Q. What symptoms, aside from casts and albumin, denote conclusively that one has Bright's disease?

A. There are no positive, conclusive symptoms, but when one has a blood pressure up to 140 or 150 continuously, it is pretty good evidence that the kidneys are diseased.

Q. What is the cause of a white coat on the tongue? A. Germs.

Q. What is good for inactive bowels? A. A laxative diet, an abundance of exercise, development of the abdominal muscles, and if necessary, the use of some bulky substance like Colax or sterilized bran.

Q. What foods are laxative? A. All acid foods are laxative; malt honey is laxative; dates are laxative; all fruits are laxative, and bulky foods are laxative.

Q. How rapidly is the discontinuance of meat eating spreading?

A. Very fast. A year ago last spring 25,000 or 30,000 people I understood dicarded meat for a month, tried the experiment, and there wasn't anybody scared. Nobody was afraid anybody was going to suffer. Thousands and thousands of working men foreswore meat just for the purpose of trying to reduce the price of meat. I do not think they succeeded. The price is never coming down, but it is going to keep climbing a little higher and a little hgher and a little higher every year. The reports of the agricultural department show that the price of meat is higher every ten years than during the previous ten years. It can not be otherwise because, according to one authority, it takes from twenty to fifty times as much land to support a person on a meat diet as on a vegetable diet. From twelve to tenty times as much vegetable food can be raised on land, the average crops that are ordinarily produced represent from twelve to twenty times as much food as could be supported in the form of cattle raised on the same land, and this food is worth more than twice as much as animal flesh; so it is perfectly safe to say that from twenty to fifty times as much land is required to support a man on a flesh diet as on a xxxxxxxxxx natural diet. It t takes a whole acre to support a man on a meat diet, a whole acre. That acre will easily support twenty to fifty people if other crops are raised and properly cultivated. By intensive cultivation, the amount of food produced on an acre can be increased many times. The average crop of potatoes, for example, is less than 100 bushels to the acre, yet, by improved farming, it is easy to produce 400 bushels to the acre, and by the very best efforts and most intensive farming, it is possible to raise as many as 800 bushels to the acre. When we

crowd cattle into small spaces, they get endemic diseases and die off.

Q. What is good to build up the general system?

A. The cold air bath, sleeping outdoors, antitoxic diet, Sanitarium foods

Q. Is sauerkraut a good food?

A. It is better than beefsteak? It is not the very best food, but it is better to eat sauerkraut than to eat nothing raw. It is very much better to eat sauerkraut than to live on cooked food all the time. People who can not get fresh vegetables in winter time ought to use sauerkraut freely. The sauerkraut barrel is a sort of silo in which greenstuffs undergo the same kind of fermentation as in a silo.

Q. What are the first symptoms of appendicitis?

A. Pain, vomiting, chill, fever. A doctor should always be called to look into the case. You sbuld not try to treat your own case if you have appendicitis. Hot fomentations will often give relief; a large hot enema, drinking an abundance of hot water, no matter if you vomit it again, the ice bag, with hot fomentations to the feet and legs.

Q. Is pneumonia contagious?

A. Yes, it is more or less contagious; there is no doubt about it.

Q. What causes the teeth to decay near the gums?

A. An infected state of the mouth and a low resistance of the body. It is necessary for the colon to be kept in a thoroughly sanitary condition in order that this difficulty should be overcome.

Q. Are the puddings prepared at the Sanitarium prepared with cane sugar?

A. I am sorry to say they are. We have not yet found a sugar which will take the place of cane sugar in flavor. I recommend you not to use very much puddings or sweets. Some of those things are served because of the hardness of heart of the people who call for them.

Q. Is the whey of sour milk valuable as a food?

A. Yes, it is a good food.

Q. Why is it harmful to try to go back to sleep when one wakes up later than four o'clock in the morning?

A. It is not harmful. By all means, get all the sleep you can at any time of day.

Q. Explain the beneficial effects of the sunbath.

A. They are the stimulating effects upon the protoplasm of the cells which are stimulated to activity by the rays of the sunx which penetrate the skin and reach the cells deeper in.

Q. Why is a combination of cream and fruit bad for the stomach.

A. Because the cream keeps the food in the stomach too long a time. If the cream is taken in moderation, it generally is not harmful.

Q. If a person belches after eating bananas are they barmful?

A. This will not happen, I think, if the bananas are made into pulp before they are eaten.

Q. How long does it take an ordinary meal to get out of the stomach?

A. Three to five hours.

Q. Should the same number of calories be taken when one takes two meals a day, as when three are eaten? A. Yes, just the same.

Q. Why are malt honey and other sweets hard of digestion by a stomach with hyperacidity?

A. Because they stimulate the stomach to make gastric juice, and that is one reason why they are beneficial for one who has slow digestion.

Q. What causes discolored spots on one's hands?

A. It is a poisonous coloring matter known as Brenz catechin formed in the colon that should be destroyed by the kidneys, but the kidneys are worn out so they are not able to destroy the poison any more as fast as necessary, so they accumulate and are deposited in the stomach.

Q. If three large doses of olive oil a day don't relieve acidity of the stomach, what will? A. Such a case should be carefully investigted.

Q. Is dressing in a very cold room harmful?

A. No, it is a good plan if you are a very feeble person and sleep in a close room, and can not arrange otherwise, to get out of bed and take a cold air bath, rub yourself vigorously all over with a towel, then get back into bed again and get warm. Keep the bed covered up so as to keep in the warmth of the bed. Get back to bed again until reaction takes place, and you feel nice and warm; then get up and put on your clothing. Then get dressed. By all means do not get chilled in dressing. It is a very, very bad thing for feeble people to get chilled. It means a congested liver, stomach, and disturbed circulation, and maybe worse mischiefs than those.

Q. Is there a cure for hardening of the arteries?

A. If they are not too hard, they may be very much improved.

Q. In winter what is the best thing to do after an electric light bath to avoid taking cold?

A. After the electric light bath, be sure to get under one of those fans in the bathroom and let the fan blow on you until you feel that you are thoroughly dry, in the meantime taking exercise rubbing the surface of the body. Get he skin thoroughly dry before you leave the room.

Q. If I eat a piece of magnesia when I have sour stomach it stops at once. Is magnesia harmful?

A. Don't depend on it, because it does ot remove the cause. It is all right to use it temporarily for a few times, but habitually it is not good.

Q. What do you consider the best exercise, walking or horseback riding?

A. It depends upon the person. Walking is a splendid exercise, that is fast walking, fast enough to stimulate the lungs to work well. Horseback riding is a good exercise too provided you have ~~xxxxxx~~ a good horse; that is, it is especially good exercise for the horse. It is not the most vigorous exercise, by any means. An eminent French writer on gymnastics talks about sedentary life in the saddle. Cavalry men are generally very fat.

Q. What causes albumin in the urine? A. Diseased kidneys.

Q. Can you cite any passage in Mrs. Eddy's writings where she says man is God or God man as stated in your lecture?

A. I gave Mrs. Eddy's argument as I understand it; perhaps not exactly in the words; but next time I come to the questionbox I will try to have a book from Mrs. Eddy from which I will read to you. It is one of the older editions of her book, "Science and the Scriptures", and is not now in print, and has been, I understand, very much modified by her editors since this book was published.

Q. Is more than nine hours sleep detrimental? A. Not if you need it.

Q. Why is reading when lying down hard on the eyes?

A. Because every time the heart beats, the hand is lifted. When you are lying down, the heart is continually pushing the blood around, and the arm tends to straighten with each beat of the heart; so when you are holding the book in your hand, the book is moving back and foth before your eyes continually, ad your eyes ae kept continually bush accommodating themselves to the distance. It does not do any harm to read lying down provided you lie in such a position that this thing would not occur, but it is very difficult indeed to arrange it. The bookshould be supported on a firm support, and the head supported in position if you are going to read when lying down.

Q. What causes my nose to get cold when there is no apparent cause for it? A. It is possible it may be the beginning of a peculiar disease known as Reynaud's disease, a disease in which the fingers sometimes become white and very cold. There is irritation of the vasomotor centers which causes spasm in this particular part of the body, the nose perhaps, or the fingers, and sometimes leads to serious disease of the parts.

Q. What makes the hair come out? A. Faulty nutrition. Maybe indigestion, maybe too little sleep--simply failure of nutrition.

Q. Is it injurious to the stomach to take soda for indigestion? A. Yes.

Q. Is it true that taking a heavy meal in the middle of the day makes one sluggish?

A. One should never take a meal so heavy that it makes him sluggish.

Q. Is senna a good cathartic?

A. No, there are no good cathartics; they are all bad.

Q. What makes gallstones? A. Germs absorbed from the colon. In every gallstone there are colon germs, sometimes typhoid fever germs.

Q. If one is to eat enough for bulk to relieve the inactivity of the bowels, what should he do to avoid making the stomach uncomfortable?

A. In such a case the patient may require an abdominal supporter to support the stomach so it will not sag down and perhaps needs massage after eating. Lie down on the right side and take deep breaths to empty the stomach.xx

Q. How would you account for one never having headache whose bowels have been sluggish and inactive for years?

A. He has a particularly good liver and kidneys that are able to deal with those poisons. By and by the time will come when the arteries are hard, and then he will wish he had had a headache to warn him in time.

Q. Name some combinations of food that are hard and some that are easy to digest. A. All foods practically are easy to digest if they are chewed to a pulp before they are swallowed; however, fat foods remain a long time in the stomach; so foods containing a great amount of fat are hard to digest, comparatively so. All fat foods remain a long time in the stomach. Protein is the hardest of all foods to digest. Nothing requires more energy on the part of the body. For instance, when you eat a piece of beefsteak, it takes forty per cent of the energy in the beefsteak to digest the beefsteak; whereas, if we eat starch and fats that we get in cereals, this is not true at all; the amount of energy required in digestion is so very slight that it is really unappreciable.

Q. Which is better for cooking purposes, peanut oil, or cottonseed oil?

A. Peanut oil which is unsophisticated, pressed from the nuts without any rendering or refining. These chemical processes change the food value.

Q. What would be the result of sciatica if it don't yield promptly?

A. It will continue and be a source of pain and distress, but it never kills anybody.

Q. Is potassium bromid a harmless thing to take?

A. By no means; it is a very powerful and damaging drug and should never be used except when absolutely necessary under a physician's care and prescription. I remember a lady some years ago was brought here by her husband and a doctor, and after she had been here three or four days, she said to me, "Why, Doctor, I am well, and I don't see why?" But after a week or two she happened to hear this same question answered, and she said, "Doctor, I know now why I got well so quick. I was on bromid of potash when I came here. My doctor told me when I was nervous to take a little medicine that he gave me, so I tookit and it helped me, and I was nervous all the time, so I took it every few minutes, and I noticed after while I staggered, and pretty soon I could not walk." That is one of the effects of bromid of potash. This lady became drunk on it. She had to get rid of this poison, then was on her feet all right.

Q. Is vaccination good or bad? A. It is both good and bad. It is a convenient method of preventing small-pox, but it is not an ideal method of preventing small-pox, and it has some possible evils that are undesirable, and once in a very great while some serious result comes from vaccination; but if you have to choose between small-pox and the kinepox, it is a great deal better to have the kinepox.

Q. Does colitis require the diet cure? A. It can not be cured in any other way. Without the use of animal food, there would be no colitis. I state that on the authority of Prof. Tissier, of the Pasteur Institute, Paris. He says himself emphatically that there would be no colitis if there were no use of animal food. So in colitis cut out animal foods of every sort,--beef, milk, and eggs, until the germs which produce this awful disease are blotted out, until a new set of friendly organisms are installed in their place.

Q. Will beetle oil be beneficial in a case of goiter?

A. I should say the best thing for such a patient is to have a careful examintion by a physician, then to follow the prescription. Don't use any

of these advertised nostrums. They are generally harmful or useless, so the proper thing to do is to ask your family physician what is the best to do, and he will give you ~~xoxxxhixxg~~ proper advice.

Get the benefit of all this glorious sunshine, get outdoors all you can, and while you are here be careful to store up just a much useful information as you can to take home with you, and tell your neighbors, and organize a health and efficiency club when you get home to show your neighbors the right way to live. I thank you for your patient attention.

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LECTURE 4I.

September II,I9II.

L E C T U R E 41.

613

anemia 10

Cold 14

Kinks in colon 15

insomnia 16

QUESTION BOX LECTURE

At the Sanitarium Parlor, Battle Creek, Mich., Monday, September 11, 1911,

At 8:00 P. M., By,

J. H. Kellogg, M. D.

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Once more we are to discuss a question of perennial interest--how to live; how to live well, how to live long in the world, in which we are surrounded always by dangers which threaten our lives. We can not live easily in this bad world in which we find ourselves. Life is a battle. We must fight for our lives. And fortunately this battle is for the most part carried on without our knowledge, and without our wills having anything at all to do with it. Every moment of our lives there is a fierce conflict waging in every portion of our bodies. We are surrounded with enemies; we are covered with enemies. If our eyes could be opened so we could see, every human being would appear to us like a child covered with serpents, with venomous reptiles that are threatening to tear us to pieces with their fangs. That is the way we would appear, because that is the real fact. A microscopic examination of the surface of our bodies would show that on every minute speck of surface there are veritable millions of millions upon millions of bacteria which are seeking to penetrate, working their way in, and they are continually penetrating our bodies, and then if examination were made of the lining skin, of the body--the mucous membrane of which there are seven square feet of surface, we would find the very same thing there--millions and millions of millions of bacteria everywhere in the mucous membrane which lines the interior of the body--seven square feet of mucous membrane all covered over with venomous germs that are seeking to get into the citadel of life, and the 21 square feet of skin that covers the surface of the body,--covered with the same sort of bacteria; Now, these bacteria are working in. In the interior of the body, in the intestines there are produced every day not less than

300 trillions of these bacteria. Try to conceive of such a number if you can. You know a trillion is a large number; a trillion is a million million--so it is 300 million million bacteria that are bornin the interior of the body every day, and a large number of these bacteria are poison-forming bacteria. They find their way, great numbers of them, into the blood; they ~~xxxx~~ are carried to the liver, the liver destroys them and eliminates them. If it were not for that fact, we could not live an hour. The bacteria that find their way in through the skin get down to the living cells below the skin, and there they find living cells ready to engulf them and capture them; they are swallowed and destroyed; and if it were ot for this army of sentinels that are always ready to fight for our lives and defend us, we would very soon be wiped off the face of the earth by these multitudes of microbes that are continually assailing us. So you see the thing of greatest importance to every one of us is to know how to keep these sentinels of the bo dy to their work--these living sentinels, these living cells that are foundin the blood--the white blood cells, and the connective tissue cells,--the living cells of the body--how to keep them to the point of high resistance. Now, you know, a cell (soldier?) to be ready to fight must be well fed, it (he) must be well cared for, must be well equipped with arms, and must have a gun ad know how to use it; must have a saber and know how to use it; must know how to make use of his various means of defense. Now, it is exactly so with these living cells. A cell to be ready to meet a germ and to worst it in a battle, to fight its fight successfully--a living cell in order to be properly equipped for its battle must be in the first place a robust cell, a cell full of vitality, a cell that is well fed, that is supplied with good health, normal blood to feed it to build it up so that it shall be intact, so that it shall be vigorous and ready to fight and able to endure a continuous fight,for life is one continuous battle from birth to death,~~xxxxx~~ We die only when we can no longer fight. That is why we die--because we can no longer maintain this fight. Our liing cells have lost their power to fight. Another thing that cell needs in order to carry on its fight

properly is to be well armed. How does a cell fight? That thing was not understood until recently, but within recent years it has been learned that a cell fights with weapons just as does a man who is fighting, and the weapon with which the cell fights is an antitoxin. Germs kills us by means of the poisons which they create in our bodies. That is why we die. When a man has typhoid fever, he has fever because of the typhoid fever germs that are growing in his body are making a poison which when circulated through the blood causes the temperature of the body to rise and makes fever. Diphtheria kills a child because it produces a poison which when circulating in the blood not only raises the temperature but produces paralysis. Cholera kills a man who has it because it produces a poison which causes the body to pour out serum into the intestine until the blood becomes thicker and thicker and thicker until by and by it will no longer circulate; then the man dies,--killed by the poison produced by cholera germs. Now, that is true of all infectious diseases. They kill by producing poisons. Now, the way in which the body defends itself is by making antidotes for these poisons, and every living cell has the power to make an antidote which will kill germs. Now, it is only when the cells are intact, when they are healthy, that they are able to do this. Now, let me show you what application these simple facts have that have been worked out in modern times--what application this has to our daily lives. Here is a man, for instance, who does not breathe enough, does not use his lungs properly. A man sits down in a rocking chair with the lungs collapsed, gasps a little now and then, but does not get enough ~~hisadxixis~~ oxygen into his blood, and what is the consequence? Why, the blood cells become asphyxiated, and all the body cells become asphyxiated. You know how a baby looks when it is coughing, coughing, coughing--crying, crying, crying until it gets black in the face. The baby is almost dead; it is nearly asphyxiated with the poisonous carbonic acid gas. The very same thing happens to every cell in the body when we do not get oxygen enough to purify the blood. ,Imagine, if you please, every single one of the living cells in our bodies black in the face, just ready to

expire, asphyxiated. That is the very thing that happens; that is what happens to your finger if you tie a string around it--it gets black because the oxygen is no longer supplied to th finger; the oxygen is all used up; and the finger is getting paralyzed, asphyxiated, dying. Keep a string tied around it long enough, and the finger will be dead. Now, when a cell is asphyxiated in this way it can no longer battle, it can no longer fight. It is like a man whose hands, arms and legs are frozen, and who is benumbed with the cold; or who is intoxicated with liquor, with alcohol, stupefied with an anesthetic; he can no longer fight; the cells are anesthetized. That is the reason why people catch consumption by living indoors. Consumption is an indoor disease, a house disease; and it comes because our vitality is lowered, our resistance is lowered by living indoors, not getting oxygen enough. Now, suppose one is eating a diet which produces poisons and circulates them in the body. For instance, suppose one is eating mustard, pepper, peppersauce, ginger and things of that kind,--poisons--these poisons taken into the bdy destroy the activity of the cells, so they are no longer able to make antitoxins; hey are no longer able to fight off germs. Suppose a man is eating meat. It is not the meat itself, but what happens to the meat after it gets into the body. Beefsteak in itself is not such a bad thing. I would eat beefsteak before I would starve to death, a great deal quicker. I would kill a sheep and eat it before I would starve to death.But I would not kill a sheep and eat it when I saw something a great deal better to eat. I believe in living on the top shelf, in living just as High as I can; I believe in eating just the very best things I can get hold of, so I would not eat a sheep--poor, miserable diet, when I could get something a great deal better. Sheep is a very poor kind of diet, because it is unnatural, and it is a secondphand diet. The dheep has eaten the corn and the clover, and it has used them for its own purposes. The pig, for instance, has eaten corn and rolled it around in the mud for six months, and when I eat that pig, I am only getting the corn at secondhand, all soiled and poddluted. I am not getting good, clean corn. I would ra-

ther have the corn before the pig had it, you see,--before he abused it. But that is not the worst of it. There is something a great deal worse than that. When I eat the pig, the same thing happens to a part of that pig in my body that would happen to it if it lay around in the on the ground, in a fence corner somewhere. Part of the pig is digested in the body, and that part is not so very bad; that does not hurt me very much; but the part that is not digested that lies around in the colon and undergoes decay and putrefaction,--that is the part that does me harm; that is the part that injures me, because when this rotting material is absorbed into the blood, it does me the same harm as to swallow a dead rat for dinner. The dead rat would not do me any more harm than to swallow it alive and let it rot afterwards. It is the same dead thing, and does the same harm. Now, a dead rat isn't any worse than a dead pig. A rotten, dead rat is no worse than a rotten, dead pig. The thing that is dead, an animal that is dead decays. Now, that is very plain talk; it is not pleasant talk to hear at all, I know, but I find it is not worth while to say things unless I can say them in such a way that people will remember, in such a way that people won't forget; and I would like to get this thing before your minds in such a way that you could never forget that if one is eating the flesh of a dead animal, he is eating something that is on the way to decay; he is not eating something that has been promoted and is coming up higher, now is coming to the last step to be promoted a little higher, from pig into man; but he is eating something that is going down. It was highest in the corn, purest and sweetest, and best in the corn, and the pig ate it and let it down, and it is now on the way down, back to dust again, going around the cycle; and now if man eats the pig, does it make up the chain? Well, a carnivorous man puts himself on a level with other carnivorous creatures when he eats the carnivorous diet. I met a man today, looked at his hand, and there were peculiar black spots on it. He said, "What are those?" I said, "Those are leopard spots. You have been living on a leopard's diet, and you have got a leopard's skin." If a man eats

the same diet the leopard eats, he gets spotted like a leopard. The spots are not as pretty as the leopard spots either. Why? Because the decay that takes place in this decaying food, in this putrescible material--the decay that takes place produces certain brownish coloring matters which are absorbed into the blood. When we first eat them they do nt do us any harm apparently, but by and by the body gets worn out in its efforts to destroy these poisons, the glands undergo degeneration, and these red and black spots on the hands, brown spots, are an evidence that that degeneration has taken place; that is the proof of it; because so long as the body can possibly maintain its work in destroying these poisons, it will do it. Now, when you find a man with those brown spots on his hands, it means not only that his suprarenal capsules are degenerated--it is the suprarenal capsules that destroy this brown coloring material--that is one of their functions; that is known to be the case; and it is not only that these suprarenal capsules have degenerated; but his thyroid gland has degenerated. I found a man the other day, could not find that he had any thryoid gland at all. No, it was a lady; her hands were all covered over with brown spots, brown spots all over her body, and her skin was almost as brown as an Indian's, because of the entire failure of the antitoxic glands. Now, that poor woman hasn't but a few years to live, in spite of all we can do for her. She hasn't but a little while to live. We can not restore those glands that are gone. It is exactly the same as with an arm or a limb that is cut off; it is gone, and it can not be restored. The only thing that can possibly be done is to advise that woman in such a way that she will be able to live on the purest diet possible, so that there will be just as little work as possible for these glands to do; and then the small remains of those glands that she still possesses, may be able to keep up the work for quite a while; but the process of degeneration is going on any way. That is the way we get old. We would never get old at all, we would live 5000 years, if we only keep our antitoxic glands intact. That is what old age is,--it is the wearing out of the poison-destroying glands, so that the poisons

accumulate within the body,and then we die. It is exactly the same thing as the draught getting stopped up in your stove; the chimney gets full of soot which prevents the smoke from getting out, so the smoke comes out into your room, fills the house, and by and by the smoke accumulates in the stove to such a degree that it puts the fire out. Now, that is exactly the way the vital fires of the body are put out--it is by the poisons that ought to be eliminated, the products of your burning, the products of the fire burning in the body, and they accumulate to such an extent that they put the fire out; so when the products of the vital burning that is going on in our bodies, the vital firing may not be consuming the foodstuffs we eat, and when the products of combustion accumulate, they put the fire out. Now, don't you see how important it is, then, that we should reduce the amount of poisons which accumulate in our bodies to as small a point as possible? Make the work of our antitoxic glands as little as possible so as to keep them intact just as long as we possibly can. It is simply cutting off the spring of our lives, so to spak, when we wear out these antitoxic glands unnecessarily. So you see why it is the man who smokes can not live out his proper length of life; he can not live out all his days; the man who smokes, because his antitoxic glands must be occupied in destroying nicotin. The man who drinks--his liver and other antitoxic glands must be utilized in destroying alcohol, so he can't live out all his days. He may live to be 100 years old. I heard of a man today 96 years old, still smoking--why that man had antitoxic glands powerful enough to last him 150 years; but he has thrown away the fifty years of his life. He might have been vigorous at 100 years as Cheuveril was on the 100th anniversary of his dinner, and able to sit down at his anniversary dinner, hale and hearty because he had never smoked, he had nver drunk liquors, alcoholics, and he did not eat meat either; he lived a splendid simple life, so he lived out the whole length of his life. He lived the full number of his days. Well, now, you see how important it is to study this matter, to be informed about it. The thing that will give our antitoxic glands as little work as p

work as possible to do, the thing that will keep our cells supplied with the purest blood, that will furnish them with the ammunition with which they can fight off the germs that are assailing us continually,--those are the things we want to know about; those are the things that will keep us healthy and well, keep our efficiency up to the highest possible level. Now, let me give you a few proofs of this. You say, "Oh, these are Dr. Kellogg's theories." They are not my theories at all. I am just giving you the things that have been worked out in modern times by the chemist, the physiologist, the microscopist and the bacteriologist who have labored in laboratories to find the real facts of things. Now, for instance, here is one experiment that has been made. You have heard of anthrax. Anthrax is a disease of sheep, that sheep suffer from a great deal in France and some other parts of the world. Pasteur studied this disease; it was one of the very first diseases he studied,--this malignant pestilence that was carrying off the sheep in great numbers. It was found to be a most virulent disease, and a disease most tenacious of life. For instance, a sheep would die and be buried away down twenty feet below the surface of the ground, and yet if other sheep three years later were brought into that pasture and should eat the grass growing out of that soil, those sheep would contract the same disease and die. Now, in this way it was found that these anthrax germs were so virulent, so tenacious of life that they lived away down below the surface of the ground, twenty feet below the surface, and would gradually come up to the surface and other sheep eating the grass would become infected by it. So you see what a terrible thing disease this is. There is one animal that is proof against this disease, virulent as it is, even attacking human beings as well as sheep. But the pigeon is entirely proof against this disease. No matter how many of these anthrax germs were put into a pigeon, the pigeon would live, had no effect upon it; but if this pigeon was made to smoke a cigaret, in other words, when this pigeon had a very small amount of nicotin introduced into its body, just a small amountof nicotin, and then these anthrax germs were introduced, the pigeon

died in a very few days; the infection developed and the pigeon died. Now, you see, how ridiculous it is then, the idea that some people have that nicotin, or that smoking is a preventive of disease. About thirty years ago now one day I was attending a meeting of the Michigan State Board of Health, and some member of the board came in smoking. He knew I didn't smoke, and he thought he was under some obligations to make some apology, and he said, "Doctor, I passed a house today where there was a red flag, hung out, and I am fumigating for smallpox." Of course that was a ridiculous excuse for smoking, but it answered the purpose for the moment. People have the idea that nicotin, or the use of tobacco somehow preserves people. We find an old man 96 years old and we say he is pidkled in tobacco, or he is preserved, or is pickled in whiskey. Now, these poisons do not have any such effect. While we find some old people that are still alive, let me ask you, my friends, to look on the other side of that kuestion; just think of the thousands and the hundreds of thousands that have been killed off by those very poisons. Just think of the great number of cases that offer themselves for service in the army and are rejected because they have hearts so weak that they could not march on the double quick, so as to get away from the enemy if they were pursued. Just think of the large number of men, the hundreds of thousands of men were there is one man who drank whiskey lived to an advanced age, think of the hundreds of thousands of men who have gone down to untimely graves, to drunkard graves. Now, what is true of alcohol is just as true of every other thing that promotes the development of poisons in the body; whether it is diet, whether it is sedentary habits, whether it is drinking impure water,--no matter what it is, anything that loads the body with poisons addduincreases the work of the body in destroying poisons, that lessens the efficiency of the antitoxic glands and hastens the time when they would no longer be able do their work. So here at Battle Creek we are trying to hold up a plan of life, to recommend and advocate a plan of life that will offer the greatest possible chance for a long and efficient life. Right living is the thing the

world needs just at the present time more than anything else; instruction and education in right living. We are going down hill so fast we must do something to stop this downward tide if we can. But I must answer some of these questions. All of these questions have their relation to the things I have been saying. I have been only making a preface; now we will get down to business.

Q. What would you advise one to do who is suffering from anemia?

A. Of course, the idea is that theperson whohas anemia needs iron; so the old fashioned way was to give him iron. It is less than 100 years since persons who had anemia were fed iron filings. That was a remedy used for anemia less than fifty years ago. Then iron in various forms was administered. Within the last ten years it has been proven that although the blood contains iron, the blood can not accumulate iron, can not get iron out of mineral iron. These chemical compounds of iron are not the source from which the blood can get iron. The blood requires organic iron. Now, there is a difference between life iron and dead iron. Iron that has been organized, that has been wrought up from the mineral kingdom and elevated, transposed into the living plant, into food--that kind of iron is ready for the body to utilize and assimulate; but the iron we find that is got from the mine, mineral iron, that can not be appropriated by the body. The body is a user of food, a user of energy. The vegetable is a storer of energy. The vegetable kingdom takes energy from the sunlight and combines it with mineral substances in such a way as to hold this energy; and that is called food. Now,the human body takes this energy and utilizes it; so we must have our iron in organized form; in other words, we must take it in the form of food. But we do not need very much iron. The body uses hardly one grain of iron a day. A body of iron that is half as big as a grain ofwheat will supply the body with all it needs for a whole day. It is surprising how little iron the body really needs. When a person has anemia, it is not because he has not iron enough; we can always find iron enough in food; that is not the reason. The reason is that his blood is being destroyed; it is not that he doesn't make blood enough, generally; the blood is destroyed after it is made. Now, Dr. Herter of New

York, made some wry interesting observations some years ago. A number of years ago the discovery was made that there are certain substances whichhave the power to destroy the blood cells. Suppose this is a blood cell. There are certain substances which when brought in contact with thisblood cell simply wipe it off the map; simply dissolve it. You see a blood cell right before your eyes under the microscope, and you put some chemical substance into that blood, let it float in around the blood cells, and they disappear, dissolve like a lump of sugar dissolving in water. Now, there are certain chemical substances have the power to do this, and these substances are produced by germs. There are certain germs that are capable of producing these poisonous substances, and those germs have been found to be growing in the intestine. Dr. Herter, of New York, one of the best bacteriologists in the United States, discovered that here are certain of these germs which he found growing in the intestine of carnivorous animals and of men who are living upon a mixed diet, and of persons who are suffering from anemia. Now, it has been known for a long time that persons who had anemia generally had inactive bowels, and that constipation was a cause of anemia. That has been known to the medical profession for years and years; so Dr. Herter has finally run it down, and he has found the actual germs that produce the poisons. He took these germs, put them into a test-tube with beef-tea, made a culture of them in that way, looked at that beeftea and he could not see anything in it; but he put a few drops of it in a quantity of blood, and it dissolved right before his eyes. Instead of having red blood cells, little particles in it in suspension, he had simply a pinkish solution of blood with no red cells there at all. So we know now that the thing to do when a man has anemia is to disinfect his intestine. It is not to give him more iron; that is not what he wants, but to get his intestine disinfected so it will destroy the germs that are making poisons which are destroying the blood. It is to save what blood he has, and to stop this destruction of blood. We had a man come here a while ago whose blood was down to 14, and in a few weeks the blood was nearly 100, away up

almost to normal; and it has stayed up; it has remained up. His good wife stood right by him, would not let him eat any meat. She said he came very near it several times, but she prevented it. Under the supervision of his wife that man has eaten no meat, and his blood is able to destroy germs, and it is now up to 86, and he is enjoying perfect health. Now, I have seen that happen a good many times, but it is not by feeding iron. That man never took one single particle of medicine, and his blood came up from 14 to 86 in the course of a few weeks, and he was entirely well, and remains well. The man was here a little while ago. He was Mr. Owen, of Pine Bluff, Arkansas. He stood up here in this room a few weeks ago to let you all have a look at him; he was a healthy man, and some of you here can testify to the fact.

Q. My little girl sleeps with her mouth open. What do you advise?

A. She probably has adenoids, little growths in the back of the throat that ought to be removed so the air can pass freely through the nose. There was an old lady here a short time ago who had not breathed through her nose when she was asleep for eleven years. She had been sleeping with her mouth open for eleven years, and it affected her voice, it affected her throat, and she was really in a very serious condition. There was obstruction in the upper part of her nose. The obstruction was removed, and she is now in perfect health, and very happy in being able to breathe thrugh her nose when she is asleep. Of course she does not snore now as she used to, so it is more comfortable for her neighbors as well as for her.

Q. Can hemorrhoids be cured by a Sanitarium diet?

A. Sometimes, not always. When the hemorrhoids are due to an inactive state of the bowels, if the bowels are made to move regularly and promptly, then this difficulty will disappear.

Q. Can rheumatic gout be cured and how?

A. Yes, rheumatic gout can be cured at the beginning. Generally the only thing that can be done for rheumatic gout is to stop it where it is, and

prevent its going any farther. Rheumatic gout has also been found to be due to poisons produced in the intestine, absorbed into the blood, and setting up this rheumatic condition of the joints. Dr. Herter proved that also.

Q. How much protein does one need a day. A. One tenth of the total ration. That is enough. That is the maximum. Let me say to all of you that we have in the dining room all the time, every meal, a dietitian, and generally two dietitians, and any of you who want to ask any question about the food, or about how to eat it, or anything else in relation to diet, just call for the dietitian. Call for the dietitian any time you want to and you can get the information you want right on the spot.

Q. Is rye bread wholesome? A. Yes.

A. Is it easily digested? A. It is not as easily digested as wheat, but it is very wholesome. It is ot quite so palatable as wheat bread for most peopa

Q. What would you suggest for a person who wakes at two o'clock every night and can not go to sleep again?

A. I have a wry important suggestion to mab to that person, two important suggestions. One is to go to bed without supper. That is a very important suggestion. Thatix is the most important suggestion I can make to you--is to go to bed without your supper. Don't eat anything after four o'clock in the afternoon. When one eats food, there is a drowziness produced for a while, while the food lies in the stomach, but by and by when that food begins to leave the stomach and get into the small intestine, then the products of digestion are absorbed and they are stimulating, they stimulate the brain and produce insomnia; so you sleep well when you first go to bed, but after a few hours, when the intestinal digestion begins, and absorption begins, then you get waked up and can 't go to sleep. Now, the other important suggestion to make is that when you find you can not sleep at night, gt up and get into a bath-tub with water at a temperature of 92°, not less than that; it may be as warm as 95°, but not less than 92°. Get into the bath-tub and stay there. How long? Till you get sleepy.

I told a nurse the other night to put her patient into a bathtub and keep her there until she consented to go to sleep, and when she got ready to go to sleep, to put her to bed;and leave her there all night if she would nt go to sleep. In half an hour you will be so sleepy you can not keep awake. The probability is you will fall asleep right here in the bathtub. That is the way I have slept many a time.

Q. What causes atrophy of the muscles and hardening of the body?

A. It is usually caused by neuritis.

Q. How often should one drink yogurt?

A. If it agrees with you, take yogurt in place of ordinary milk; it doesn't agree with everybody.

Q. How is membranous croup cured?

A. It is diphtheria in the larynx. Send for a doctor right away, and the doctor will administer antitoxin and other remedies one of the most important of which is the inhalation of steam. Keep the room well ventilated, but warm it at a temperature of about eighty, and steam should be admitted continually to the child's throat.

Q. What should we do for a cold when first beginning?

A. Take a warm bath at night, a real warm bath, a sweating bath, followed up with a cold bath; then go to bed and drink water. It is very important to gt over that cold as quick as possible; stay right in bed and do nothing but drink water; don't eat anything but just drink water, drink, drink, drink a glassful of water every hour and you will rinse that cold out. Keep the room rather warm and well ventilated. Now there is another way to cure a cold, and that is to take no bath at all, or a very cold bath, not a warm bath, but a cold bath; drink plenty of water, go outdoors and stay there until you get over your cold. If you live outdoors entirely, you will get rid of your cold in the cold air, because it increases your resistance. A cold is an infection. There is no difference between a cold and lagrippe only a different

germ; that is all. Cold is always due to germs. Some people are carying around in their nee or throats all the while germs that are capable of giving them a cold, and when the resistance is low, a little bit of exposure to cold, or over-fatigue, or some other means, then these germs begin their work, and you experience the infection.

Q. How can kinks in the colon be cured?

A. That is the problem we are working on. It is not such an easy thigg to do. Sometimes an abdominal supporter serves the purpose pefectly, which will lift the bowel up and just relieve the kink when it happens to be in the transverse colon. Sometimes abdominal massage will help overcome this difficulty. Sometimes a surgical operation is necessary. In a few cases I have performed an operation of this sort. In one case the patient had a very bad kink of this sort right down there in the transverse colon, and the result was enormous distension of the cecum here. The cecum became enormously distended, and the patient had not had a natural movement of the bowels for twenty years and more. Now, here is where the small intestine joins. In this case I found it necessary to cut the small intestine off right over there, and bring the small intestine over and attach it on here. You see in that way we get around the kink. The small intestine is here, so the colon is only a foot long;instead of food remnants having to go all this long distance around to get by that kink, the food passes all the way along down this way. Now, the patient's bowels moved three times the next day after operation, and have been moving right along since all right. That is quite a seriour operation, and it is better to get along in some other way. People who have these kinks in the colon need first of all to eat bulky food. If there is considerable bulk, it will spread the kink out. So bulky food,--colax, bran, fruits, and bulky foods in general are very useful on this account.

Q. What is good to produce sleep when one lies awake for several hours after retiring? A. In the first place, do not eat any supper. The moist abdominal

bandage is a good thing; the wet sheet pack is another good thing. Remain in it not long enough to sweat, but long enough to get wellwarmed up. The neutral bath is one of the best things I know of.

Q. Is cow's milk good for a baby?

A. No, cow's milk is good for calves; it is not adapted to human infants. It may be the best food the baby can get, but it should always be diluted. When you first begin to feed cow's milk to a baby, it should have an equal quantity of water added to it, or an equal part of thin barley gruel, oatmeal gruel, or some other kind of gruel should be added to it, in equal quantity; then the milk should be increased very gradually. Of course, in six months, the baby might be able to take full milk. Skimmilk will often agree with the baby, and especially buttermilk will agree with the baby when ordinary milk is really a poison to it. If the baby is not getting along well on milk, put the baby on a buttermilk diet for a little while with barley water and see how well it will get along; then after while add a little sterilized cream to the buttermilk. Ordinary cow's milk should never be used unless it has ben sterilized. It must be boiled ten minutes, or it should be Pasteurized; that is, heat it to 170° for half an hour; then it is safer. Ordinary commercial cow's milk contains great numbers of germs.

Q. Is it hurtful for one who has abdominal troubles to swim?

A. If there is any pain afterwards, avoid it.

Q. How soon after a meal is the food all out of the stomach?

A. That just depends upon the stomach,--no, not entirely upon the stomach, but also on the food. The lumberman is very fond of fat pork because he says it sticks by the ribs, and that is exactly what it does; it stays up there under the ribs and don't digest. That is why he says it stieks by the ribs. That is true of all kinds of fat foods. Fats of every description stay in the stomach a long time, so they are slow of digestion, and that is why they are called hearty foods, because they remain in the stomach so long. So if you

have a slow stomach eat just as little fat as possible. The fat should be emulsified fat; eat milk instead of butter. Take your fat in a natural form instead of in a clear form, the form of pure fat. If the stomach is dilated, it takes a long time for it to get empty. I remember some time ago we had a man wo complained that he was very thirsty, and taking one glass of water didn't do him a bit of good. He said he had to drink four or five glasses before he was at all relieved. Now, I examined this man and found the reason why he didn't get relief was because he had a pouch in his stomach. That is the sort of stomach he had, and he had to fill this pouch up so that his stomach was brimfull, and he didn't feel any relief at all until it got full enough to run over, because the stomach does not absorb liquids, you see. The fluids you take into the stomach are not absorbed by the stomach or until they get out of the stomach anddown into the small intestine where there are thousands of little villi projecting from the mucous membrane, thousands and millions of them, and these are the source of absorption. A man was telling me aboutthose villi the other day, and he said he knew thre was something the matter with the villains in his small intestine, and wanted to know whether anything could be done for them. These villains are very useful, and they absorb the liquids, and when one drinks liquid, the iquid must be passed out of the stomach, and it generally goes out within ten or fifteen minutes, the liquid does, and into the intestine, before it gives one any relief. So you see it depends upon the stomach. The food remained in this man's stomach for seven or eight or nine or ten hours. Now, we don't wait for such stomachs any more. We used to wait months and months and years and years for them to get well, but now such stomachs can be cured by putting this pouch up inside like that, then sewing the ends together here, then the pouch is turned inside, and gradually shrivels up until by and by it disappears entirely. In some cases it is necessary to bring the smallintestine up in this way and make an opening here so that the food can pass out at the bottom of the stomach.

Q. Will distilled water kill a peson because of lack of salts, if used contimually? A. No, there is othing more harmless in the world than distilled water. The idea that distilled water will kill people because it kills blood cells is a very great mistake. If you put some blood into distilled water, the corpuscles will swell up and burst, be destroyed, but the distilled water taken into the stomach isabsorbed little by little into the blood, and when it gets into the blood there is always enough salt in the blood to protect the corpuscles.

Q. What is locomotor ataxia? A. It is a disease of certain ganglia of the spinal cord.

Q. You said that in outdoor sleeping in winter, one should dress like one preparing to go sleighing. What kind of sleeping clothes do you wear?

A. The whole body is covered well, except the nose and hands. Have the shoulders covered because when you mow about at night you are likely to take cold by uncovering the shoulders unless you are thoroughly protected. Sleeping bgs are very useful. In addition to the ordinary pajamas, one needs a very thick sleeping gown, and long, thick stockins, and perhaps heavy cloth boots made out of flannel and doubled, for the legs and feet, and a thick hood for the head so as to protect the ears and the face, because the cold air blowing upon the face will keep one awake.

Q. What is the cause of coughing after taking exercise?

A. The cause of coughing after exercising is congestion of the lungs. Coughing under such circumstances is always an evidence of congestion. When you find yourselves coughing after exercising, it is because your lungs are congested; so one should stop a little short of so much exercise as to produce coughing.

Q. Is angina pectoris curable? A. Yes, it is generally curable. It is now claimed by some of the most eminent authorities that angina pectoris begins in the stomach. Certainly there are a great number of cases of angina pectoris which are directly attributable to diseased conditions of the stomach; so that is the place to which the treatment should be addressed. No doubt this

condition of the heart which is present in angina pectoris always predisposes to attacks, but the primary trouble is probably in the stomach.

Q. If the stomach has not enough acid, should one use olive oil?

A. One should be very chary in the use of olive oil or of fats of any sort when the gastric acid is diminished in quantity, because oils prevent the stomach from making acid. Oils hinder the stomach from making acid. When oil is put into the stomach, the stomach will make absolutely no acid at all, and the more oil the less acid. That is when there are other foods there the stomach will make some acid, but oil alone will prevent the stomach from making acid, or it inhibits it, as thephysiologists say.

Q. Do you recommend the cold shower bath?

A. Yes, but the cold towel bath is better. It is not necessary to take the cold shower bath to get the benefit of the cold morning bath. A towel wrug out of cold water, rather moist, and rubbed thoroughly over the surface of the body will give one all the tonic effect required.

Q. What is lumbago? A. It is pain in a lumbar nerve, dus to pressure on a nerve. I saw a case recently in wich there was a tumor growing and pressing on the nerve. Or it may be due to inflammation of a nerve, neuritis, or it may be a reflex action fromthe sympathetic ganglia. When the stomach, liver or other internal organs are congested, it produces irritationxx of the large sympathetic ganglia and they reflexly irritate the lumbar nerves, and sometimes the sciatic nerve. Sometimes perhaps the stomach and bowels will produce such an irritation.

Q. In what way does massage differ from osteopathy?

A. Osteopathy claims more and does less. Massage claims less and does more. Osteopathy claims to be able to cure everything by means of manual manipulations. Some things are not curable. For instance, a patient came in tdday suffering from a serious form of trouble, and has been treated by osteopathy for months and months with no benefit whatever, and this patient could not be benefited, because there was no chance for osteopathy, external manipulations, to

to do that patient any good. The case was not one to be treated in that way. It needed other kinds of treatment. In fact, it was a case of internal tumor, required surgical treatment. I suppose half the people in this room have been treated by Osteopaths before coming here. It is astonishing what a great number of people have been treated by Osteopaths. I think at least one third, or perhaps a half of the people coming here to the Sanitarium report that they have been treated before coming here by Osteopaths, and haven't got any benefit from it. The thing makes such great promises, offers such wonderful results that many people are tempted to try it, and some people are benefited. If a person needs massage, the osteopath generally does them good. The chiropractic is a most dangerous method. It supposes everything comes from the spine in some way, and jerks and strains are applied, and sometimes people are very seriously damaged. Some time ago a lady said to me, "Oh, Doctor, I made an awful mistake." I said, "What was it?" "Oh," she said, "you told me my husband was pretty sick; you thought he could get better, but would not promise to cure him, but a chiropractic in the town said he could cure him; so I took him to him, he treated him, gave him one or two treatments, then we went home, and came back again and he took just one treatment, and it produced a terrible pain, and he began to go down, and down and down, and soon got so bad he had to take him home, and in a little while he was dead; he killed him, he killed him." This lady sayd this to me with a great deal of vehemence, because she said down deep in her soul that her husband had been killed, and I didn't doubt that he had; I do not doubt that his death was hastened by the treatment that was applied to him. That is the great trouble with these Osteopaths and this chiropractic fellows--we can not call them doctors;--the great trouble is they do not know enough to know when it is sag to do the things which they do, and when it is not safe, sometimes the patient is seriously damaged. More than one case of death has occurred as the result of these rude practices. Another illustration of the same sort. A man came here to be examined. He had been treated by an Osteopath in this town for several months. I don't often say anything about them, but you have asked the

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question and I suppose it is fair for you to kow the truth. The patient was sitting down as I came into the office, and I saw a look of pain upon his face, asked him to rise, and kis he put his hands upon his knees and slowly raised up in this way, and finally got up on his feet, and I knew at once what was the matter; I knew he had a diseased condition of his spinal vertebrae, and he had risen in this manner so as to lift the pressure off his vertebrae. That is all that is necessary to make diagnosis in that kind of case. I said, "What have you been doing?" "Well," he said, "an Osteopath has been treating me." "What did he do to you?" "I had a pain in my knee, and he said I had hip joint disease in my hip, that it was out of joint, so he has been trying to put my hip back in place again, but could not put it back, so he put me under an anesthetic, gave me chloroform, then got up and stood on me, put his foot on the small of my back and twisted my leg around, and it didn't come back then, and I have been so bad since I could not walk." Now, that patient we found, proved, demonstrated by the X ray, had tubercular disease of the spinal column. His vertebrae were diseased; he had tuberculosis of the spinal column, and the bones were some of them so pliable friable that when this man put his foot upon them he crushed these bones. Now, the man did not need that sort of treatment, but this Osteopath didn't kow any better. The Osteopaths of this town are frequently sending their patients up here now to have X ray examinations. They are beginning to find out that they can not always tell for certain by simply looking at a man--they may make a mistake. Nobody can tell, of course, by simply looking at a man that all his troubles are due to some dislocated joint. It is simply nonsense. People are finding it out, and the Osteopaths are not having mx so much business as they did have at first, as thexxara every new fad of that sort has a great following at the beginning. I am not saying that massage and manipulations are not useful; they are, but they need to be applied scientifically. The first thing of all when a man is sick, the most essential of all things is to have a correct diagnosis; it is to know what is the matter, and the next thing is to

know what was the cause. Generally a sick man gets well if you remove the cause of his trouble. A man that has tobacco heart gets well when he stops using tobacco, and a man who is poisoned gets well when he stops eating poison. He generally does not have to do anything else but stop his poison in the majority of cases. Sometimes the disease has gone so far something more needs to be done. That is, he has got so far down that he has to be lifted out.

Q. Tell us what to do for hardening of the arteries.

A. Remove the cause of the trouble. If yu have been drinking tea or coffee, stop it; if you have been eating beefsteak, mutton chops, and fish and things, stop. That is making hardening of the arteries all the while. Now that fish will harden the arteries in itself, but the decomposition, the putrefaction of undigested remnants of these foods, the excess that is taken--and they are always in excess--results in poisons which ~~making~~ circulating in the blood cause hardening of the arteries. How do I now that? Because Prof. Voix of Paris took the trouble to make experiments upon rabits, pigs, guinea-pigs, and other animals, and proved that that was true--that the products of putrefaction will produce hardening of the arteries.

Q. Explain the Finssen light.

A. The arc light produces three kinds of rays, the heat rays, luminous rays, and chemical rays, and when applied to any part of the body, these rays all penetrate into the interior of the body, and they produce powerful stimulating effects. One of the proofs of this is the brown skin, another proof of it is the sunburn that is produced, or the solar erythema, as it is called.

Q. Why is it bad to drink water less than two hours after meals?

A. Now, it isn't necessary to make a rule of that sort. One should not drink large quantities of water, but he may take a little water whenever he feels thirsty, but one should not drink large quantities of water within a couple of hours after eating. The fact that you are thirsty is evidence you need to drink. But you must not overload the stomach. It is not necessary that a

thoroughly healthy person should be so rigidly strict about that, becaus the stomach will be able to take care of the extra quantity of water; but the person who has hyperacidity or slow stomach, or feeble stomach, or any other trouble with the stomach should be very careful to observe rules that are not really necessary for a thoroughly healthy person. In other words, we have to do works of supererogation, as our Catholic friends would say.

Q. Is malt honey classified with fruits, vegetables, or nuts?

A. It goes along with the cereals, but it really is akin to fruits. The fruits contain starch which has been converted into sugar, and no starch. The malt honey is cereal starch that has been converted into sugar, hence it goes along with fruits.

Q. Are the drinks at soda fountain harmful?

A. Yes, some of them are very harmful, Particularly Coca Cola and other similar preparations. They may not contain cola, but they contain caffein in as large quantity as it is found in in coffee, so it is a very harmful thing.

Q. Ought a person with weak muscles of the eye exercise them or let them rest completely? A. In general these weak muscles must be exercised. There are certain circumstances under which they should rest. You must have the eye examined, and the oculist, Dr. Colver, will tell you about that.

Q. How soon after a meal can one eat again without harm?

A. When that meal has been digested and disposed of, and you have got really keenly hungry. One should never eat when he is not hungry. One should avoid eating while the food of the previous meal is still in the stomach. As a rule, it is well to have five to seven hours between meals.

Q. Is it advisable to take milk and vegetables at the same meal?

A. Yes, if vegetables are well chewed and milk agrees with you. But if it does not agree with you, it will be certain to disagree if you eat vegetables at the same time.

Q. What is hay fever?

A. It is fever due to irritation by the pollen of different kinds of

plants. 115 or 120 different kinds of plants produce pollen which produces the symptoms of hay fever. Even lilacs will produce hay fever in certain very susceptible people.

Q. Is it not true that taking the heaviest meal of the middle of the day makes a person stupid in the early part of the afternoon?

A. Yes, if one eats too much. The reason why he feels heavy is because there isso much blood in the stomach, there is ot enough to keep his brain going. Such a person should rest for a while. He should lay down for half an hour or an hour after eating, then this effect will not be produced.

Q. Should a person having neuritis take exercise? If so, what kind?

A. If the neuritis is so severe as to produce a good deal of pain, such exercises as produce much pain should not be taken. A hot fomentation sbuld be employed, and heating compresses at night.

Q. How may a slightly degenerated thyroid gland be cured?

A. By hot and cold applications, by massage, the heating compress worn at night, especially avoiding anything which undergoes decay in the body.

Q. How many calories a day is suffiedent for the growth and development of a little girl of ten years?

A. A little girl of ten years requires 2/3 as many calories as adults.

Q. Will raw cabbage dissolve stone in the kidney?

A. No, nothing will dissolve stone in the kidney except to take the kidney out, or take the stone out and put it into sulphuric acid or some other powerful solvent.

Q. What do you mean by wasting muscle? Can it be cured?

A. A wasting muscle as the result of neuritis will become restored, will grow again when the neuritis is cured. When the nerve is restored, the muscle also will be restored. The wasted muscles may be nearly always restored if the nerve can be restored. The nerve is the thing that requires first consideration.

Q. What are the indications when one has too many white blood cells?

A. The indications are that the body is making a fight against germs of some kind, making a big fight; so these white blood cells are produced in unusual number in order that he may make a successful fight. If you have got an extra number of white blood cells, you ought to be thankful that you can produce them. You should not be scared about that. They are making a good fight.

Q. Can the colon be thoroughly cleansed by the enema?

A. Sometimes. If there are too many kinks in it, no. But the small intestine can not be emptied by the enema, so this is not a reliable means of emptying the bowel. The bowels should be made to move naturally; otherwise there is mischief.

Q. What diet is best for a patient with acute catarrh of the duodenum?

A. Such a person must eat a very strict antitoxic diet. No meat, no eggs until after the catarrh or colitis has disappeared.

Q. Is there any way to get kinks out of the colon?

A. Yes. Suppose, for instance, we have here a kink. By joining the colon together, and bringing the walls of the colon together here in this way, making an opening between, we get around the kink, you see. This operation is being performed in a great many cases now with good results.

Q. Is benzoin a safe remedy?

A. Perfectly safe. It is somewhat beneficial.

Q. Why has yogurt buttermilk an antilaxative effect with some people?

A. Simply because it is so completely absorbed and digested.

Q. What is the best and quickest method of training the bowels to move three times a day?

A. The use of bulky food, of bran if necessary, of acids, acid fruits, an abundant use of fruits, massage, the moist abdominal bandage, and 25 or 30 other things that are necessary to bring to bear upon some cases in order to secure this result. You must have an examination and see what the trouble is and where the trouble is. Sometimes it is in one part of the colon, sometimes

in another; and different remedies must be applied to suit different conditions that are present.

Q. What is neuroma?

A. A growth of nerve tissue, an extremely painful malady.

Q. Why is it bad to take yogurt and malt honey at the same meal?

A. It is not the very best thing to do. Malt honey encourages the growth of germs and so is beneficial.

Q. What is the difference between neuritis and neurasthenia? A. Well, neuritis is one thing and neurasthenia is another thing. Neuritis is an inflammation of a nerve. Neurasthenia is a state in which the nerves are poisoned, a state of poisoning of the nerves.

Q Is 95 too high for diastolic pressure?

A. It is rather high, but better than if it were 150.

Q. What is probably the matter with a man who is below normal weight, who eats hartily, exercises properly, and can not gain weight?

A. The chances are ten to one he has autointoxication. Now, the liver does work which is necessary for increasing flesh. The fat making elements must pass through the liver, be operated on by the liver to create flesh. If a person's liver is overworked in destroying poisons absorbed from the colon, the person can not gin in weight.

Q. Does autointoxication cause the legs to become stiff and inactive?

A. That is oneof the first symptoms of ehrumatism, is stiffness of the muscles. That is one of the first beginnings of chronic rheumatism, and that is prodced by autointoxication.

Q. Whese are the juices and sweets of fruits digested?

A. The sweets of fruits require no digestion at all. The sugar of fruits is absorbed directly into the body. The sugar of malt honey is digested in the small intestine, but if it is absorbed without digestion, it does no harm, because it can be digested in the blood or in the tissues.

Q. Why do my hands itch and burn in cold weather?

A. Because you have a very sensitive, irritable skin. You should protect the skin with a little coating of oil, liquid vaseline, alboline is a good thing. Do not leave soap on the skin. The hands should always be washed in a running stream. Never wash in a bowl. I understand some of the natives of South Africa once saw a man washing in a bowl, and they thought he was a very dirty person. We should wash in a running stream, and the idea of washing in a bowl, washing his hands with water which was already soiled, they thought it was a very dirty practice. You can not get the hands clean in a bowl of water; unless you are washing in a running stream when you can wash the dirt away. When you use soap, be very careful to rinse all the soap off, every particle of it, off the skin. The reason why the hands chap in cold weather is generally that either dirt or soap is left on the skin and produces irritation. I used to have great trouble. My skin is very thin and delicate, and I used to have great trouble with chapped hands, for I had to wash my hands so many times a day, but I finally found when I washed them in a running stream and used strong, yellow, laundry soap, or green soap, which is a little stronger yet--I use the strongest soap I can get to wash my hands, then take care to wash that soap all off, every bit of it. I always wash in a running stream. I feel I am unclean if I wash in a bowl. I do not feel that I am in proper condition to examine a patient or to touch anybody until I have washed my hands in a running stream, and know that all the dirt is washed away. I have not the slightest trouble. I wash my hands at least 100 times or more a day, and I never have had the slightest difficulty with my hands since I have taken pains to get them thoroughly clean.

Q. Can intestinal obstruction be located by the X ray? A. Very often.

When adhesions have taken place between the stomach and liver, the lack of mobility of stomach and movement by intestine can be recognized by the X ray. That is one of the kinds of precious information which the X ray gives us.

Q. What foods are best to make red corpuscles?

A. Just good, natural wholesome food, cereals, fruits and fresh vegetables are particularly valuable. Cucumbers and lettuce are good, and the heart of cabbage. The green part of the lettuce is better than the white or millde part, because it has the most iron init .

Q. Is it dangerous to have moles on the face removed?

A. It is not at all dangerous to have them removed, but it is dangerous to leave them behind. Every seventh woman and every twelfth man over forty years of age is going to die of cancer; so it is a good thing to look out for it and to guard against it in every way we possibly can. If you have any moles anywhere, have them removed; be rid of them; because that is the place where cancer will come if it is going to come anywhere.

Q. After operation for removal of a portion of the bowels, how is the normal function of the organs restored.

A. The body has a surplus and can spare a considerable part of the bowels. We have 25 feet of small intestine, and fife feet of colon, and a European surgeon removed all of that small intestine but five feet, and three feet of the colon, so that there was left only seven feet of intestine, two feet of colon, and five feet of small intestine. And the patient is alive and well, getting on first rate, but that patient must take excellent care in the diet. The patient had tuberculosis of the intestine, nearly the wole of it involved, and the surgeon removed it, and the patient made a good recovery.

Q. My system is permeated with rheumatism. How can I get rid of it?

A. Stopeating it. Nobody ever has rheumatism unless he eats it. If youk have rheumatism, it is because you have been eating things that created rheumatism. That means beefsteak, mutton chops, oysters, chicken, fish, and all that sort of thing. Fragments of those things that are not digested remain in the colon, rot, decay, putrefy, and the poisons that are absorbed reduce the defensive power, and germs are encouraged to grow, and so are responsible for the rheumatism. If there is anything that is clinically proven, I am sure that is.

You can hardly find an intelligent physician anywhere that doesn't know that. When a man gets organic rheumatism, goes to a doctor, and the doctor says, "Stop eating meat." Had a man up here a little while ago who had been down to Chicago to see Dr. Billings, and he came here with a prescription from Dr. Billings. He had rheumatism. Dr. Billings said, "You must not eat any more meat; you must not take any more tea or coffee; you must stop smoking; you must drink two or three quarts of water a day, and you must live outdoors." Now, what better could he have said to him? I could not have made a better prescription myself, so far as diet and regimen are concerned.

Q. How about oranges? A. Next to the apple, the orange is the best fruit the Lord ever made. It is a very, very fine fruit. Oranges and apples are the best fruits the earth produces, in my opinion--the two most splendid fruits we have. Orange juice is an extremely valuable thing. If you are where you can obtain plenty of oranges, you may use them very freely, and will profit by taking a dozen oranges a day. Now, don't call on the caterer for a dozen oranges a day, every one of you, because we haven't got enough in cold storage to supply you; but if you just wanted to do one thing that was good and wholesome, use plenty of fresh fruit juice. Now, I am not certain that fresh orange juice is any better in this particular than fresh cucumber juice; the fresh juices of vegetables and fruits are of immense value, because they furnish to the body some delicate and precious properties that can not be obtained in any other way; and when these things are cooked, then these delicate enzymes and diastases are destroyed, and their value is lost; and that is the reason why the baby starves to death on sterilized milk; but if the baby has the juice of an orange with its food in the course of a day, it will save the baby's life. It is marvelous what good results are produced by the free use of thesefresh, uncooked things. Man did not begin life on this planet with a cookstove. He began life without a cookstove, lived for ages without any cookstove, living on the natural products of the earth. We forget that. We imagine we can improve things, whereas, as a matter of fact, in the question of diet, man is the only creature on

on the face of the earth that proceeds to spoil his food before he eats it, proceeds to damage and injure his food before he eats it. A monkey would not do such a thing; the dog would not do such a thing; and that is because they take their food in just as convenient a condition as they can possibly get it. Man takes his food that God has made for him, having in it all the delicate, fine touches that are necessary to make it exactly suited to his needs; he takes it, pollutes it with spices, condiments, animal fats, greases, then cooks it and ruins it to a very large degree. There is only one kind of food that is improved by cooking, and that is the cereals, and the coarse root vegetables. They are improved by cooking, because the starch they contain needs to have the envelopes burst open in order that the gastric juice should get access to them. Fruits, nuts, and newly formed stems and leaves, like lettuce, and such foods as the cucumber and melons are already to digest, and more easily digestible without cooking.

Q. What is the proper diet for a person with Bright's disease?

A. Eschew meats and eggs. Take the Sanitarium bill of fare, an anti-toxic diet; take nothing that can rot in the intestine.

Q. What do you recommend for a fat abdomen?

A. I recommend sawing wood. It is splendid exercise; something that will make these muscles work. You say you don't want to saw wood. Very well, then lie down on your back and raise your legs. You can do it either way. Saw wood and do something useful, or lie down on your back and raise your legs to the horizontal 150 times a day. But you say"I am so fat I can not." Now, that is just what I was afraid of. If you are so fat you can not do it, then the next best thing is to raise your head. Lie down on your back and raise your head, raise it far enough so you can see your toes, and continue that practice of raising the head, and that will contract these abdominal muscles and make them work. The muscles get fat, or this portion of the body gets fat because that part of the body does not work. Work uses up food as fuel. The muscle uses food just as a furnace burns it up. You have been going down beside a stream, and you have noticed a place where there is a root or a rock sticking out toward

the downstream side, and you notice things floating around there in that little eddy. Now, that is because of stagnation there; the water does not move. Now, it is exactly so with parts of the body. The fat accumulates where there is stagnation, where there is deficient activity, so the main thing is to make that part of the body work.In a very fat person the forearms or hands are never fat, because they do a whole lot of work in feeding. The feet and calves are never fat, because they have to do a lot of working in carrying the bdy around. But some persons work so hard sitting down, you see, so steadily, that is the way they get fat around the abdomen and about the hips. So we must make those parts of the body work that have not been accustomed to work. That is the fact, the truth about it. Swimming is a splendid thing for a fat abdomen. It throws the head out, contracts these muscles, makes them work, and the cold water helps to burn up the fat.

Q. If one has the full number of red corpuscles and more than the full number of white cells, what does it indicate?

A. It indicates he is in good fighting trim.

Q. What bad feelings are the symptoms of cancer?

A. Don't imagine you have got cancer. You haven't got it, and you are not going to have it if you live right. You do not have to have it, because statistics show that one in every seven women and one in every twelve men is going to have cancer. I do not think one single person in this room needs to have cancer. Some of you will have it because you won't live right, but you should live up to the teaching you get here, nd if you do you won't have cancer. The chances are ten to one that not a single person in this room need have cancer if they will just live right--no meat, nothing that will pollute the blood, because it is unclean blood that makes cancer; that is the real cause of cancer--is unclean blood. If the blood is kept clean, up to a high fighting point, there could not be such a thing as cancer, you could not have it, and if you got anything of that kind started, it would be killed off. I have seen a

I have seen a man that had cancer get well when he changed his habits of life. He had been a meat eater, a sedentary man, a bookkeeper. He had a cancer on the back of his neck. He said it had been there four years. I took off a piece, examined it under the microscope, found sure enough it was cancer; but that man didn't have any operation. That cancer actually dried up and dropped off, disappeared, and the man now for nearly ten years has been perfectly well, and not a single trace of cancer. He simply changed his habits of living,--drank a great deal of water, stopped eating meat, exercised outdoors,--was a bookkeeper,--he made a garden and worked outdoors, and got thoroughly well, and has remained well. You say you don't believe it was cancer. I didn't think so either. So I sent the specimen down to the pathologist of the Bellevue Hospital, at New York, one of the most eminent professors of pathology in the Unied States, and he examined it and reported it was a very pernicious kind of cancer, and was boring its way into the tissues. That man got well of it, and without doing a thing excxept correcting his habits of life. So if a person has a tendency to cancer, or has had cancer, the most important thing of all is for him to live right. People that have cancer are meat eaters. People that don't eat meat don't have cancer; at least, such cases are very rare. I should be awfully ashamed to die of cancer. If you ever hear that I have cancer, you may pronounce me,--oh, what shall I say? Certainly, a mistaken man, a thoroughly mistaken man. If I die of cancer it will be because I have made an awful mistake; but I am willing to trust my life on these principles of natural living, not because I have discovered them, for I haven't discovered anything; but because they are good, and natural. Now, m ym friends, you can not get ahead of Nature, or ahead of the God that made us; and when God made us, he knew what was best for us,, and if we find what is best, natural for us, that is the divine way, the safe way.

Q. Are the bacilli in yogurt tablets still alive? A. Certainly they are.

Q. What is the quickest way to cure weak abdominal muscles?

A. Lie down on your back, make them work; or stand up and saw wood, or

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how in a garden, or spade, or run up and down stairs; do washing, ironing, etc. All these things are good for the abdominal muscles. Manual Swedish movements, Massage, the sinusoidal current, and electricity are good too.

Q. What kind of artificial light is best for the eyes?

A. A diffuse light is best for the eyes. The ground glass which we use here is a great advantage, because that very brilliantly illuminated filament is injurious to the eye. It is better that this very brilliant light should not strike the retina of the eye.

Q. What causes prolapsed colon? A. Overfilling it with semi-solid contents, or gas.

Q. Why are cucumbers hard to digest?

A. They are not unless you saturate them with salt and vinegar. Vinegar paralyses stomach digestion. It has been shown that xinegar one teaspoonful of vinegar will paralyze the entire stomach so that it can do no work at all for a long time until that vinegar has been disposed of. It is poison to the gastric digestion. Cucumbers should be taken with a little lemonjuice, or with the very smallest bit of salt. If you must have a little salt, use just tge least little bit, and not much; better with none at all. When you get good cucumbers, they are very palatable without any addition at all.

Q. How long does Fletcher say a mouthful of food should be chewed?

A. I do not know what he says about it, but I have watched him to see how he did it. He eats twice a day, and each meal in less than twenty minutes, so you see he does not waste any time. He simply chews sufficiently to make the food moist, enough so he can swallow it.

Q. How long should a man spend in eating the average meal?

A. Twenty to thirty minutes. It depends upon how industrious you are, and how closely you attend to business. If one attends right closely to business, I think he can eat the ordinary meal very well in fifteen to twenty minutes. We don't want to eat so much; that is the thing, you see. If one

~~anyone~~ eats so much as some people do, it will take three or four hours to chew it properly. Eat sparingly, masticate the food thoroughly. You don't need to overdo the chewing. Get the food well ground up, reduced until the flavor is no longer quite as pronounced as it was; you don't have to chew it until the flavor is entirely exhausted; one doesn't have to work his teeth so much. Some people get an exaggerated idea of this thing. I knew one man who chewed so long it took him all day to chew his food; he had hardly any respite at all; he had worn himself out.

Q. How can yogurt cheese be made from yogurt buttermilk?

A. It can't be made from yogurt buttermilk, but from milk. It must be made according to the method of Camembert cheese, only you leave out the mouldy crackers. In making Camembert cheese, they have mouldy crackers with beards on them, and these crackers are rubbed up through a sieve, and the crumbs sprinkled into the curd at a certain stage of the process, and that is what makes Camembert cheese; it is the mouldy crackers put into it. Otherwise than that the process is the same, but instead of using sour milk, we use the Bacillus Bulgaricus, or friendly germ.

Q. What is a good substitute for cane sugar?

A. Malt sugar. I advise you to use malt sugar whenever you can in place of cane sugar. There are some combinations that don't agree very well. Use malt sugar for fruit always; it agrees very well. But don't put it into the fruit in canning it. Apples cut up with a little malt honey on themare very nice. Use malt honey for cereals instead of cane sugar. It doesn't irritate the stomach, and is more readily assimilated.

Q. Can colax be used indefinitely without harm? A. Yes.

A. Why is yogurt beneficial? A. It produces an acid state of the colon so the unhealthy germs, disease germs, can not grow. We have down in the domestic science department a jar which contains a few quarts of yogurt buttermilk and a pound of beefsteak which has been there since two years ago the seventh day of last June, and is still in perfectly sweet condition.

Q. Is epilepsy curable?

A. Yes, idiopathic epilepsy is often curable. A large proportion of cases are curable by the antitoxic diet, by discontinuing the use of salt, and by medication to a small degree for a moderate time.

Q. Should adenoids be removed? A. Yes, always.

Q. Do enemas cure inactive bowels? A. No.

Q. Is it not carrying fletcherism too far to spend 45 minutes to an hour eating a meal? A. Yes, more than necessary unless you eat a good deal.

Q. What is the greatest American authority on the stomach and intestines? A. I don't now that we have any American authority that is considered great. Our best American books are in large degree a translation of German books. Dr. Boas and Prof. Ewald of Berlin, and Dr. von Noorden, of Vienna are considered the best authorities in the world.

Q. Should a person force himself to drink water when he is not thirsty?

A. Yes, indeed. One does not always wait to wash his face until the face feels dirty. One does not delay taking a bath until he feels dirty before he takes a bath. One drinks not only when he is thirsty, but when he feels he ought to drink, in order to supply his body with the proper amount of liquid. If Ishould drink only when I was thirsty, I should never drink at all. Because it is very rare that I am thirsty. I eat very, wry little salt, and very little protein, and those are both reasons why I am not thirsty. But I do drink two glasses of water when I go to bed at night, and when I get up in the morning, and I drink during the day whenever I can think of it. It is a good plan to drink two or three quarts of water a day to make the blood clean, to keep the tissues as clean as possible. There is no harm done by this extra water.

Q. What food will harden the muscles and teeth?

A. Hard food, hard food; food that you have to chew.

Q. Is there any way of testing foods for cane sugar at home?

A. Yes, there is a way of testing, but it would not be worth your while

to do it. You are a member of the health and efficiency league. Everybody who comes here becomes a member of the Health and Efficiency League, and when you go home, you will get a copy of Good Health sent to you regularly for the next year, and every week a copy of the Battle Creek Idea. We are going to keep right after you and pursue you with these lectures so you won't forget. Now, if you have anything at home you want tested for cane sugar, you can sent it in and have it examined, as you are a member of the Health and Efficiency League; you can send it to our laboratory for examination, and find out about it.

Q. What is Tissane?

A. It is a preparation of Bacillus Bifidus and of Bacillus Bulgaricus--two friendly germs. When a baby is born, the Bacillus Bifidus takes possession of its colon within a few hours and it keeps the baby healthy. By and by the Bacillus bifidus gets driven out by putrefactive germs from cow's milk and other things, so it is useful sometimes to restore this Bacillus bifidus.

Q. Do bananas contain canesugar? A. In very, very small amount.

Q. Is overeating in vegetarianiam as bad as eating meat?

A. Yes, it is worse than eating meat. Some things are worse than eating meat, and overeating is one of them.

Q. Is a decided gain in weight an indication of improvement?

A. Yes, generally. When one is exercising and taking treatment, a gain in weight generally means improved nutrition.

Q. What should one do when the body is full of uric acid?

A. Stop eating uric acid; eat good wholesome food, the antitoxic diet..

Q. What is the food value of bran?

A. Very small. There are salts in it, lime in it, protein in it, very little carbohydrate in it, but still enough to be worth while to take the bran for the lime that is in it.

Q. What is the cause of brain fever? A. It is infection.

Q. Why is ice cream hard to digest. Because the stomach is prolapsed

and can not digest it, is one reason; it is chilled so it can not secrete gastric juice; and because the fat which is present in large amount inhibits the action of the stomach in making gastric juice, and prevents it.

Q. A patient suffering from exophthalmic goiter responds to treatment apparently but dies of affection of the liver superinduced by an attack of jaundice. What is the cause?

A. The exophthalmic goiter is due to autointoxication, and the jaundice is due to the same thing. The liver trouble is due to the same thing. It is simply intestinal autointoxication in both cases.

Q. What is the cause of continual distress at the end of the breastbone?

A. It is hyperesthesia of the solar plexus, probably excessive secretion of the gastric juice, but the fact may be due to gastric catarrh.

Q. Please name the sub-acid fruits.

A. The fruits that are just slightly acid are the sub-acid fruits.

Q. Is mineral water containing salts of magnesia and iron good to use?

A. No, mineral waters are not good to use; they are all harmful, because the body must deal with all those salts. They produce irritation of the mucous membrane, disturb the kidneys by excessive activity to eliminate the salts.

Q. Is the pneumonia serum, discovered by Dr. Schaffer of California, proving successful and reliable?

A. Not as yet. It hasn't as yet been demonstrated; may be beneficial.

Q. For what reason are nuts good for the body?

A. Because they are wholesome food when well chewed and not taken in too great quantity. One should never take more than a few ounces a day, and that would amount to as much as four or five times as much beefsteak.

Q. How can a hypo stomach be cured?

A. It can not always be cured, but give it as little work to do as possible. Stop eating meat, because that is what wore it out. Short cold applications over the stomach, massage of the stomach, hot applications after meals,

and a hot pack are beneficial.

Q. What care should be taken with a dilated stomach?

A. The most important thing is not to put too much ~~down~~ in it at one time; never put too much water init, or too large a meal in it. Don't take too much food at a time.

Q. Are most canned fruits preserved with cane sugar?

A. Yes, nearly all of them.

Q. Is dilatation of the rectum good for inactive bowels?

A. Sometimes when there is spasm of the sphincter muscle.

Q. What are some good books for a depressed and nervous person to read?

A. There is one Good Book that is better than all others, and that is the good, old Book, the Bible. ~~There~~ I do not know of any book I can thoroughly recommend for a nervous person except this good old Book. Read the fourth Psalm, and the sixth Psalm, and the 121st Psalm. Those are splendid Psalms for a person whohas the blues. I repeat the 121st Psalm before I go to sleep and find great comfort in it.

Q. What is the difference between hyperpepsia and hyperacidity?

A. Hyperpepsia is a condition in which the stomach has an excessive quantity of gastric juice. Sometimes there is diminished power to digest, or too much acid; but in cases of hyperpepsia there is an abnormal digestive activity. This is not a serious condition, of course. One may have excessive activity of the gastric juice without any harm coming from it.

Q. What will prevent the joints from cracking?

A. Now, that is a rheumatic symptom, and the thing to do is to cure the joints. Hot fomentations to the joints, massage of the joints, heating compresses to the joints are very beneficial.

Q. If the stomach is badly dilated andprolapsed, is it beneficial to drink a great deal of water? A. You may drink a great deal of water, but not at one time; never more than half a glassful at a time; then lie on the right side and let the water run out.

Q. Can a very slight sclerosis of the arteries be cured?

A. It often can be very greatly helped. It can not be entirely cured, but the process can be arrested, and the condition can be very greatly improved.

Q. What is the best diet for the diabetic?

A. The diabetic must have starch, absolutely. In case of nephritis, the person should have just as little protein as possible, because he needs all the protein he needs, of course, and should take all that he needs to; but we need very little protein, and the person with nephritis should take no more protein than he requires. That is the reason why he should not take beefsteak and eggs, because then he is taking more than he needs, and is always certain to get a surplus.

I fear I have tired you out, but at any rate, we have finished the box, so that we will be ready to start clear next time. I thank you for your attention.

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LECTURE 42.

September I8,I9II.

QUESTION BOX LECTURE

At the Sanitarium Parlor, Battle Creek, Mich., Monday, September 18, 1911, at

8:00 P. M., By,

J. H. Kellogg, M. D.

Lecture 42

Question: What variety of meat is the least harmful?

Answer: Original meat. There is only one kind of meat that is really to be recommended thoroughly and heartily and unequivocally and unconditionally, and that is the ~~o~~riginal meat. After God made Adam, he said to him, "Every herb bearing seed and every fruit tree bearing fruit, to you it shall be for meat." That is the original meat; that is the meat to be recommended. Well, I suppose somebody has in mind something like fried chicken, and hoping that I might make an exception in favor of fried chicken. I called at an institution once where they did not eat meat. It was a religious establishment and they didn't eat meat, but once a year or so they were allowed to eat fish; not allowed to eat meat or birds of any sort, fowl, but there was one kind of fowl, a peculiar species of duck upon which there had been a dispensation of some sort which converted it into fish, and that was allowed; that was fish so that was allowed; no other meats were eaten. Now, I do not know of any sort of dispensation; I am not able to do that sort of thing. I can not make a dispensation of any kind that will make any difference whatever between different kinds of flesh; they are all the same and they are all bad; they are dead beasts every one of them, whether it is dead fish, dead hen, or dead sheep--it is a dead beast. You never think of it in that light do you, when you are sitting down at the table and say to your neighbor, "Would you like a piece of lamb?" You don't think anything about that lamb being a four footed creature, running around with wool on its back, looking out upon the world with eyes that see, thinking, feeling, with tendons like yours, with red muscle and bones and brains that look for all the world just like yours. You never stop to think about that. Lamb does not

sound to most peopàe as it did to the little girl who had a pet lambx to which she became very much attached. By and by it got plump, and the father killed it one day when she was away from home, and when she got home there was roast lamb for dinner. The father cut off a piece and passed tit to her, but she declined it, didn't want it. He said, "What, don't you like roast lamb?" She looked up at him with tears running down her face, and said, "Oh, Papa, I can't eat Nanny." Now, the lamb was Nanny to that little girl. We don't stop to think about that. These creatures are fellow creatures. These four footed beasts, or cows, goats, and the oxen that we eat are fellow creatures; they are animals that have red blood like ours; they have nerves just like ours; their whole bodies are constructed on the same general plan as ours, belong to the same class of the animal kingdom, warm blooded animals. We are in that class zoologically, so they are relatives of ours; they are kin of ours. How is it we can sit down and feast upon them, actually gnaw their bones? It is going down on all fours xxx in diet when God never intended we should do any such thing. He intended we should reach up for our food and pluck the luscious pears, plums, peaches,--those delightful, beautiful things that are flavored with the very aroma of health, and they are handed down to us from the sunshine and the clouds, sweet and pure and beautiful, and we turn away from those things, go down in the mud, rake out an oyster that is down there buried in the slime perhaps; or seize upon a beast, cut its throat, tear off its skin, take out its entrails, then sit down and gnaw its bones. Now I have not overdrawn the picture. I am only telling you how I feel about it myself. That is why I am talking out in meeting. That is one reason why I don't eat meat; I never could bring myself to eat meat unless I was right upon the very verge of starvation. It is amazing how close we come to cannibalism in this matter of flesh eating. If we do not look out, we might become cannibals. If an Englishman got awfully hungry, he would ot object to what the South Sea Islanders call a piece of long pig. When the South Sea islanders ate missionaries, they called them long pig. I have been at a hotel for the last few days, and every day on the bill of

day on the bill of fare there appeared this line, "Little pig sausage." I don't know whether it was a little sausage or a little pig. It was there. I am not well enough posted on that sort of thing, but I got so tired of seeing little pig sausage on the bill of fare that I changed hotels. I saw that little pig looking right into my face every time I went to the table, and I simply could not stand it. Some time ago we had a visit here from Mr. Thompson-Seton. You know him; I am surex almost everybody here has read his beautiful books, for he certainly has written charming books about animals. One really falls in love with some of his animals; you can not help but love them, he has presented such beautiful pictures of them. Well, I had been anticipating Mr. Seton's visit here for some time. I thought Mr. Seton would feel very much at home here at the Sanitarium because he loved animals so well I thought certainly he would appreciate the low protein idea. So when he came, I invited my colleagues in, and we had a little banquet for him. I thought he didn't seem quite happy at the banquet, so afterwards I wanted to draw him out a little bit, and he saw we didn't have any meats of any kind, and I told him how much I appreciated his books, and I said, "Mr. Seton, when animals are so intelligent, and so much like ourselves, it really seems almost like cannibalism to eat them, doesn't it?" "Cannibalism", he said,"Why, what is the harm in cannibalism?" I said, "Why, cannibalism seems rather bad to me." He said, "Why, if I was hungry, I would just as soon eat a man as anything else." Mr. Seton admitted that the animals were kin of ours, related to us, that they are intelligent as we are, that they think as we do, that they love, hate, and fear, and have most of the human emotions, have character too, actually have character. We talk about the patient ox, don't we, and the kind old family horse, and the gentle sheep, the gntle lamb; then sit down and eat the gentle lamb. "First we feed with household bread, then eat the turkeys that before we fed." That is what Ovid, the old Latin poet, said about it. Well, so far as these animals are concerned, fish, flesh and fowl are all alike. They are equally bad, they are equally unwholesome, they all have uric

acid and practically the same amount of uric acid; and the only difference is that fowl, chickens for example, are a little morefilthy in their diet than most other animals. The dunghill fowl, for example--that is the common name of the chicken,--is the dunghill fowl which indicates where it gets its living, and when one sits down to eat that sort of beast, he is eating what the chicken ate at secondhand, and in this case it may be improved somewhat. A gentleman told me a story of his little boy who had never eaten any meat or seen it; it had never been on the table in his house. He was over to a neighbor's and they asked him in to a birthday dinner of a little friend of his, and they had something on the table different from anything he had ever seen before. He looked at it very sharply for a moment, then he said, "Why, that looks like a dead turkey." "Yes," the lady said, "Yes, that is roast turkey. Would you like some?" "Oh, no, I don't eat dead turkeys, he said." So the lady thought she ought to help him in some way, ought to do something for him, and she raked out some stuffing out of the posterior opening that is arranged for the purpose, and offered the little boy some stuffing. He looked more astonished than ever. "Why," he said, "why, would you eat what the turkey ate?" It really looked to him as though the lady was feeding him something that the turkey had swallowed before it was killed. The appearances certainly justified the conclusion. Now, you know we never could tolerate such a thing as that if we had not become used to it. That little boy took a rational, sensible, natural and proper view of that thing. There was a corpse on the table, and the lady raking out something from the interior of that dead thing which the thing probably had swallowed before it was killed. That is the way the thing looked to him; and that is the proper way to look at it. Well, I can not recommend fowls, as you see. And roast beef, the red meats everybody knows all contain uric acid--fourteen grains to the pound, and sweetbreads seventy grains to the pound. Just think of it. The kidneys eliminate only six grains a day. That is the normal job for the kidneys, to eliminate of uric acid, and one pound of beefsteak has fourteen grains--two days' job for

the kidneys. I haw known some people to eat three or four pounds of beefsteak in a day, and one man, a doctor, told me some time ago that he had eaten as much as nine pounds of beefsteak at a single meal. I should expect to see that man swallow a small dog sometime if he felt really hungry. Now, it was a beefsteak contest, and he told me there was only one man in the country who got ahead of him, and that was the mayor of New York who had swallowed eleven pounds of beefsteak at a sitting. Well, there is one class of food left there--fish. What about fish? Well the fish is a little worst than all the rest. A good many people who won't eat any other sort of meat think nothing of fish. They thik that fish don't belong to the category of meats at all; but fish are the very worst of meats. Theyputrefy in the body just as much more quickly than other meats as they putrefy outside of the body. You know how quickly a fish decays, putrefies, undergoes decomposition and decay, and becomes offensive. Now, the very same thing happens in the body. They contain just as much uric acid, and are in every way as harmful. Fish is a canibal. Now you know nobody would think of eating a carnivous animal among warm blooded animals. The fish is a carnivorous animal. You hadn't thought about that. Why, I would just as soon think of eating a cat as eating a fish; in fact, I would rather eat a kitten than a fish, most assuredly. Well, now, I had a small boy from Porto Rico some time ago. I got a telegram, when the Spanish-American war was over and the soldiers had come home,-- I got a telegram from one of the professors of the University of Michigan at Ann Arbor, and he said, "I have got a Porto Rican boy twelve years old; I want a home for him; will you take him?" And I telegraphed to send him along; so he arrived, and I found he spoke but little English, and a good deal of Spanish, and a little French, and I knew just a little Spanish and a little French, and some English; so between the three languages we managed to get on, and we had a very interesting conversation. I said, "Well, what would you like to eat?" I thought I would prepare him a little beforehand for the fare he was going to get by having a little discussion of the question. Pedro said, "Well, I would like some

chicken pretty well." "Dear me," I said, "You wouldn't eat a hen yould you? If I had a live hen here would you kill that hen, sit right down and eat it?" "Yes," he said, "yes, why not? When I have been hungry, I has eaten them many times." "What, a raw hen?" "Certainly."Well, suppose it was a rat instead of a hen, would you eat the rat?" "Oh, no; Chinamen eats rats; I wouldn't eat any rat." "But how about kittens, cats?" "Oh, I can eat cats all right; we eat cats in Porto Rico." "Why;" "Well," he said, "cats are just as good as squirrels. What is the harm in eating cats?" "The squirrel eats a bird, and you eat the squirrel," he said." I said, "Well, the cat eats a rat and then you are eating the rat secondhand." "Oh, no," he said, "the cat eats the rat, but you see then she drinks water and washes, washes, washes all the rat away." Well, I changed the subject then and talked about something else, for a while. I saw he was beginning to get the start of me. I could not bring to bear upon him the larger artillery afxthem that is necessary for a full presentation of the question, so I dropped the subject for the time being; but a couple of years later I said to Pedro, "Pedro, what would you think of chicken? Would you like some chicken?" "Oh, dear me, I will never eat a dead hen again as long as I live." He had developed a different appetite, got rid entisly of his appetite for chicken. Now, fish is secondhand altogether, because a small fish eats a minnow, and a larger fish eats the small fish, then a big fish eats the larger one, and a great big fish comes along and eats the big one; so one fish eats another, don't you see, and the fish has a strong flavor, a strong smell of fish, because he is double distilled extx concentrated extract of fish. The fish is a thorough cannibal, and furnishes the only example there is of human beings eating,--of men, civilized human beings eating carnivorous animals. You won't eat a cat or a dog because they are carnivorous animals. You eat sheep that live on grass, and the ox that feeds on corn. If a pig eats another pig you don't like the taste of it, and you don't like the smell of it. You can always tell by the flavor and smell of a hog that has been eating flesh; it changes the character of its tissues so

they become tainted. The hog is suffering from autointoxicationin other words, so he has a bad breath and a bad flavor to his body. Now, what flesh eating does to the hog, it does to the man who eats flesh, as well. There is no sort of meat I can recommend, as you see. Well, now, there is the oyster. Some people think oysters are a kind of vegetable. Some people never think of it an oyster as an animal at all. You ought to see an oyster through a microscope once. Why, a drop of oyster juice is like a silver mine in Colorado; there are millions in it--millions of wriggling, scrabbling microbes running about in every direction. Why, you never saw anything so lively in your life as a drop of oyster juice,--the kind of oyster juice that the oyster is bathed in when you take him off the half shell and drop him into your throat; that slime that lubricates the oyster down your throat is simply a continuation of the ooze and slime of the ocean bottom. That is where the oyster got it . Now, if you look into the interior of that oyster, you find he has got a stomach and a little intestine, and a big intestine, and he has got a big lump that is liver and kidneys combined, and that is the big, brown end of the oyster that you like so well; then there are sundry other things. One thing the oyster lacks--he hasn't any brains. Well, there is a very small ganglion, but really the oyster has no brain, very little intellectuality, but he has a great big mouth, and a great big liver. He takes in a whole lot of filth and he has to have a great liver to deal with it. Inside that somach and that intestine are to be found typhoid fever germs and all kinds of putrefactive organisms. Some time ago an epidemic of typhoid fever broke out in Egland, and a member of the King's family, the royal family was sick; and an investigation was made, and it was found that all the oysters furnished to London were infected with typhoid fever. It was found that all the oyster beds were where the sewers emptied down into the water, and the oyster lives on the sewage. Here comes a sewer bringing down all the filth from the closets and the streams and the cesspools of the city, comes down empties into the ocean, and there it is spread all over the bottom of the ocean, and as this sediment settles down, each

little particle finds an oyster with its mouth wide open to receive it, and the filth drops in, the oyster swallows it; he doesn't travel around very much, you know, as the oyster has not very good facilities for locomotion; so it remains there until the filth floats along and drops into his mouth. Well, the oyster thus becomes a receptacle of filth; it is one of the scavengers of the sea. That is its business--to help keep the ocean clean, eating up filth, fragments of dead fishes and other dead things--the scavenger of the sea. I entirely sympathize with that anonymous poet who said, "That man must have had a palate covered o'er with brass or steel who on the rocky shore first broke the soozy oyster's slimy coat and risked the slimy morsel down his throat." He must have been a very brave man, at least a very hungry man. How we ever came to consider the oyster as a delicacy is something I can not understand. A delicacy--those slimy , oozy, germ-covered filthy things, when the world is abundantly supplied with plums, peaches, pears, and all the delightful things that have been provided for us. The oyster has no advantages; it has very small nutritive value--only eleven calories to the ounce; just think of it. Now, ordinary cornstarch has 116 calories to the ounce, 116. Skimmilk has twelve calories to the ounce, while oysters have only eleven. Skimmilk has more nourishment than oysters. A pint of skimmilk has more nourishment than a pint of oysters. What do you pay for skimmilk? It might perhaps cost one cent in the city. What do you pay for a pint of oysters? I never bught an oyster in my life, so I don't know much about the commercial side of it; but I do know the oyster is a scavenger, absolutely unfit to be eaten; but I began telling you a moment ago that typhoid fever broke out in England. Since that time scores of epidemics of typhoid fever have been traced to the oyster. We have a typhoid fly; we are learning about that. We used to suppose it was all in the water. Now it is the typhoid fly, and there is another great source, frequent source of typhoid fever, and that is the typhoid oyster, and every oyster is liable to be a carrier of typhoid fever germs. When this announcement was made in England, that the oyster had typhoid germs in it, there was a great slump in the oyster market, no demand for oysters, quantities

of oysters decayd on the hands of the dealers; trade stopped entirely, and there was a great outcry about spoiling the business of the oystermen; the oyster men all went up toparliament, and they demanded that there should be appointed government inspectors of oysters so that the people might be assured of the purity and the cleanliness of these oysters, ad that they were freei from typhoid fever. The matter was discussed considerably in parliament, but it was decided it was not practical, because it was evident that the number of inspectors required to feel the pulse and look at the tngue, and take the temperatures of every oyster to discover whether it had typhoid fever would be too great to support. So the oyster inspection never was introduced. And people going on eating the typhoid oyster with its germs.

Q. What objection do you make to thoroughly cooked roast beef?

A. I don't make any objection. I simply pass it by. I have no parley with it at all; I just pass it by. There is this objection to all meats, a scientific objection that nobody can get over, absolutedy; the more scientific the man that considers the question, the more easy it is to make the objection clear to him; and that is that meats of all sorts add to the ordinary bill of fare, introduce into the body an excess of protein. That is the great objection, that is the fundamental objection to all meats--is that they add protein to the food in excess of what we need. Now, any excess of protein is waste matter; it is poisonous matter. It is a very different thing. Protein is a very different thing from fats and starches. I might occupy a moment, perhaps, in making this clear to you, but I am sure it can be made clear to every person here that there is abundant reason why meat should be absolutely prohibited from the bill of fare, absolutely not necessary, absolutely detrimental and absolutely pernicious in their influence upon the body. Almost every food, at least the ordinary assortment of foods that are furnished from the vegetable kingdom,--fruits, grains, cereals, contain a sufficient amount of protein. Prof. Folin, the great chemist of Harvard university, said in a lecture a year and a half ago in Boston--I heard him make the statement, that we need not have the slightest concern about

proteinin our foods, that we always have enough; the only thing is to be careful not to get too much. There is always enough. Select any bill of fare you like, and you will always find protein enough. You do not need to worry about that; you are certain to get protein enough. Potatoes have enough; bread has more than we need. If we lived on bread alone, we would get an excess of protein, more than we really nead; don't you see, a diet of bread and meat is really a monstrous diet, a diet fit only for carnivorous animals, because the great excess of protein is more than the human body is prepared to deal with. So all meat is an excess, it is all a superfluity, absolutely unnecessary. You say, "What shall we use in place of meat?" You don't need to use anything in place of meat. You only need to discard from your mind the idea that meat is necessary. If you just get that false thought out of your mind, you never need to think of it again as long as you live; you need not provide any substitute for it. But you say when you do not have meat you feel the lack of something. Now that thing you feel the lack of is not the lean meat, but it is the fat of the meat. You are not taking so much fat as you have been formerly taking, so you should add a little butter or other fat to your bill of fare; eat a little more butter. Butter is the satisfying element, or fat is the satisfying element; it is the one element of food that produces satiety. If you do not feel satisfied after a meal, it is because you have not eaten fat enough, and it is the only element of food that will do it. You might eat a pound of candy and be as hungry when you get through as at the start; but if you undertook to eat a pound of butter, you would have to take a good long time to get through with it. A couple of ounces of butter would be quite sufficient. A man could eat a couple of pounds of fruit and feel that he was no more than satisfied; he wants something substantial when he gets through, and he needs bread and butter, or fat of some kind. That is why the Mexicans eat their bananas and their plantains fried. They dip them in grease and fry them in grease because they feel the need of fat. That is a very poor way to take fat, because it renders the banana, which is a very digestible sort of

food, very difficult of digestion; so fat should be added to that sort of diet to make it satisfying. I make this merely as a practical suggestion for you when you go home, When you are arranging your home bill of fare. I hope you will get those things all tbught out and planned before you go. We have twice a week a school of health, and I hope you will all go in to that school of health. Ask Miss Cooper, our head dietitian, to help youto make out some bills of fare for use after you go home. If any of you want a bill of fare to take home with you, call on the dietitian in the dining room, or on Miss Cooper, or come here to the school of health and ask questions, and you can get all the help you want in that direction. You don't need to stop when you go home. We will be glad to have letters from every one of you when you go home. Ask us how you ought to live. If you have any difficulties, write and ask us about it, and we will be glad to help you in every way we can. We have had experience with a great many people here, helping them out of problems of various sorts, and I assure you these principles of simple living can be adapted to every home. I had a letter from a man in Brooklyn some time ago. He said, "This is a most delightful thing. We have adopted this healthful diet, and my wife says there is no housekeeping any more. She says there isn't any grease on the plates, so all she has to do is to just dip them in cold water, and they are clean; and we only have two meals a day; we take almost all our food just as it comes from the field; we are living largely on fruits and nuts, with a few cooked cereals, and it simplifies the whole matter of housekeeping to such a degree that my wife says she does not have half as much work as she formerly had, and has half her time to spend in self-improvement and having a good time. That is certainly one of the advantages. We spend so much time in superfluities, in preparing things that are positively harmful, that do us no good. Just think of the great amount of time the housekeeper or the cook spends in preparing dainties of various sorts--pies and cakes, or as somebody calls them, "pisen cakes"; they are "pisen." And all sorts of difficult combinations, complicated mixtures of various sorts that are extremely harmful and hard to digest. The simples are the proper thing. "Oh,"

you say, "but I can not stand such a diet." Now, let me tell you something. When you came into the world you were content with a very simple diet. One article of food was all you asked for, and yu used to cry for that. The reason why you were content was because that one article of food had in it everything you needed. Now, the one thing to be careful about in the diet is that the food has in it all the body requires. In the food in its natural state, we will find all those things. It is only when we change and modify our foods that they become spoiled. For instance, one takes wheat and grinds it up, ad in that what you find everything the body needs--four grains of lime are there, all the phosphates required are there, and the protein is there, and the fats are there, the carbohydrates are there; there is only one thing lacking, and that is fat. A little handful of nuts will furnish the fat; but in the cereals we have a splendid assortment of what the body requires. Now, we send it to the mill and grind it up, take out the superfine flour inside, and then we have only one grain of lime instead of four; the phosphates are nearly all gone, and the body is robbed of the elements that are most essential to its welfare, and the building up and maintaining the strength and vigor of the body. So you see we should take natural food just as far as we can; and when we accustom ourselves to this for a short time, the appetite becomes adapted to it, and we do not have any craving for other things; we are content and satisfied with these simples. And then one relishes the food. Now, I heard a man say some time ago, "I would give a thousand dollars if I had that relish for food that I had when I was a boy." I could say with truth to that gentleman that when I sit down at my meal, I have just the same keen relish for my food that I had when I was a boy, and I think a keener relish. That is the way one should eat. One really should not eat until he has a relish for food, feels a keen desire for food. As Mr. Fletcher says, one ought to wait until his appetite whinnies before he eats food. Then he has appetite juice, has juice in his stomach. Appetite means gastric juice, as Pawlow showed. When one has appetite, a keen relish~~x~~ ~~xxtaxx~~ and desire for food,

he has gastric juice with which to digest it. Now, if we don't have appetite, it would be a good thing to wait a little while to get it; but it is not best to wait alone; it is best to work as well as wait, to be doing something. I have s seen people wait for appetite that never, never came. They died before it came. I have seen several instances in which people fasted to get an appetite, and the reason why they didn't get an appetite was because the tongues were covered over with filth and slime, bile, and excretions piling up in their bodies, because there was no bowel movement, until they were simply saturated with poisons and t they could not have an appetite under those circumstances.

Q. Will taking hypophosphites in connection with the Sanitarium diet aid in building up a run down system?

A. Certainly. These phosphites are splendid for building up the body, but the proper way to take them is in wheat; you do not want to take them out of a bottle, but out of a flour sack or barrel. The phosphites you buy cost at wholesale about two dollars a pound. When you come to buy it in small packages, it costs you probably about fifteen or twenty dollars a pound, but the druggist pays only two dollars a pound. Now, if you buy these phosphates in the form of wheat, the cost is very, very much less, and there is this difference. The phosphites in the wheat are organized phosphites, they are living, vitalized phosphites, while the phosphites in the bottle are mineral phosphites that you can dig out of mines, out of the earth, that you can ~~xx~~ get in the chemical laboratory, and they are not alive, not adapted to nourishing the body in the ordinary, proper way. Remember I don't recommend phosphites out of a bottle, but phosphites out of a barrel if you please.

Q. Which is the better time to walk two miles, before or after taking the morning bath?

A. Now, that depends. If it is a hot bath, you better take it before; if it is a cold bath, better take it after. In fact, a little walk before and after is a good plan. Walk before to get up a circulation so you will react well

to the bath so the cold bath will feel good, then walk afterwards to promote reaction.

Q. Of what benefit to the health is an ocean trip?

A. Well, it is a vacation, and sometimes something more. I knew a good old Methodist bishop down in Ohio, Bishop John White. I see we have a Methodist bishop in the audience here tonight, and he doubtless remembers Bishop John White of Ohio. This good old bishop told me that he had one remedy for all his ills. He said, "Every spring I get on the Baltimore and Ohio railroad and take a trip of a couple hundred miles, and I am seasick all the way down, and vomit, vomit, vomit vomit, and when I get there, I eat a square meal, then turn around and come back, and I am seasick all the way back and vomit every few minutes, and that clears me out, clears out my system, and I am all right the rest of the year." Now, the sea voyage really does some people a whole lot of good. It impels a fast for one thing. A two or three days' fast is a good thing for many people, because there are some people that eat so often that they pile one meal right on top of another and they never have a chance to get hungry in the world. I knew one man who actually got up in the middle of the night, rather had his wife get up in the middle of the night and get dinner for him, every single night of his life, at twelve o'clock. His wife had to get a good, big, square meal for this man, because he was afraid he would starve to death before breakfast if he didn't. I happened to be acquainted with another gentleman the father of Bishop John White I was telling you about, knew him in my boyhood many years ago. There is a quaint story told about this good old gentleman. He came home late at night one night, called upstairs after looking about the pantry for some cake, "Mary, where is the cake?" "Oh, John, I am sorry, but there isn't any tonight." So he made another search for pie, unsuccessfully, came back to the stairway, and shouted again, "Mary, where is the pie?" "John, I am so sorry, but there isn't any pie either." "Mary, what would you do if somebody should be sick in the night?" Now, there are so many people who imagine

that eating something is absolutely essential that they do not give themselves a chance to get really good and hungry so that the body is overcrowded, loaded all the time, and they never know what it is to have a keen appetite. I dare say that some of the people here for years before coming here did not know what it was to have a keen appetite. Before you sit down to a meal, you ought to have a good keen appetite. I have been working today, and haven't had a chance to get a square meal, and I have a good keen appetite right now, but I won't satisfy it until tomorrow morning, and I won't get a square meal until about two or three o'clock in the afternoon tomorrow, and by that time I will have a very keen appetite. Suppose I should sit down tonight and eat a square meal. Tomorrow morning, I would wake up with a bad taste in my mouth, a coated tongue, and no appetite. But yet, suppose, because of force of habit, because it is meal time, as most people do, I should sit down and eat. There would be some food crowded upon a jaded stomach that hadn't had time for rest; it would be retained in the stomach for a long time, would not be well digested, so when the usual dinner time came, twelve o'clock, I would not have any appetite for dinner, my stomach would be tired and have still some remnants,perhaps in it that haven't been fully disposed of. Then if I sit down and eat dinner, the stomach is still less prepared to deal with that dinner; and when supper time comes, there is no appetite for it, but I must eat because it is meal time, and it is such an awful thing to miss a meal, so I eat some supper. Then my stomach will struggle with that half digested supper all night long, and in the morning I have no appetite. Now, there are thousands of people that are just that way all the while, so it is good fortune for them to get a ride on the Baltimore and Ohio railroad once in a while, or to take an ocean voyage which is almost as good and vomit for a day or two so they can't eat. If they do eat, the stomach is relieved at once; does not have the opportunity of digesting that food and getting cleared out.

Many people imagine it is that because they unload a lot of bile. That is not the reason at all. Some time ago a lady came to me and said, "Oh, Doctor, if I can just

just get this bile off my stomach I know I shall be all right." "What do you mean?" I said. "Why, Doctor, I have been vomiting bile every day for the last six months, and my stomach must be full of bile." But as a matter of fact, she didn't have any bile in her stomab until she began to vomit. It was the vomiting that brought the bile into the stomach; the regurgitant action set up by the nausea and the straining and forcing of material by contraction upward brought the bile up into the stomach, so a little bile was vomited at the end of the vomiting; that is always done. It is not the bile; it is the overloading the body with food, and requiring the stomach to take up the task of digesting a new meal before it has finished the preceding meal; so it is a good thing to take an ocean voyage once in a while. But there are other things about the ocean voyage that are very good too. There is the rest some people need; there is the pure air of the ocean, unless you happen to have a poorly ventilated ship.

Q. Would the excessive use of olive oil or dairy butter cause liver trouble?

A. It would cause the liver trouble, but it would not produce liver disease necessarily. It would just make trouble for the liver because it makes intestinal autointoxication. Too much fat causes the stomach to make less gastric juice than is needed; then the foodstuffs decay, and there is putrefaction in the intestine. The gastric juice is a disinfectant, you know; that is one of its primary purposes--to disinfect the food. The stomach is chiefly a disinfecting chamber where food is disinfected. If there isn't enough gastric juice and the food is not well digested, germs that are swallowed along with it, especially if one eats limburger cheese and things of that kind that are far advanced in decay--you look once at a beefsteak through a microscope, my friends, and you would never want to touch it again in the world, even if it was well roasted, because the roasting does not kill the germs. We have found in our laboratory as many as ten billion germs in one ounce of beefsteak that was ready to be served on a hotel table in the city, and it was just as good beefsteak as you could

could find anywhere; the beefsteak was all right so far as beefsteak goes.

Q. A baby a year and a half old went to Florida, was given half an orange every day, got very sick, and the doctor said it was because it was given fruit."

A. That is the greatest mistake in the world. The baby did not get sick on fruit at all. The baby got sick on florida germs. Now, in warm countries there are always a great many germs about. When I was in Florida some twenty odd years ago, I was over on a piece of property in Tampa that somebody was very anxious I should buy. The real estate man said they never have frosts in Florida, never have it cold enough to actually need a fire, and it was the most delightful climate in the world, and he said I ought to buy that land and make a sanitarium there. Some little time afterwards yellow fever broke out down in Tampa, and I noticed in the paper after while that the inhabitants of Tampa were all rejoicing because they had a hard frost last night. Now, there is certainly an instance in which they were very happy to have some cold. The warm country is a place where germs flourish the whole year round, and you can always find putrefaction going on, so babies are particularly exposed to the kind of germs which make the babies the most trouble.

Q. In Europe they use hypodermic injections for the multiplication of blood corpuscles. Why not use them in this country?

Q. Yes, they are injecting sea water. In Paris a man injects a teaspoonful of sea water under the skin and charges them five dollars, and they think they have got better. I suppose they do. It is psychological. It is another kind of Christian Science.

Q. Please explain the sitz-bath and when it should be taken for best advantage.

A. The sitz-bath is an excellent derivative. The sitz-bath at about 95° to 100° to draw the blood away from the head is very excellent. There are certain diseases that are wonderfully helped by the sitz-bath. A foot bath

should be taken at the same time. Congestion of the whole lower viscera, of the bowels and the liver may be greatly relieved by the cool sitz-bath. It stimulates the vital activity of the intestines. It ought not to be too long, but to be a short sitz-bath with rubbing,--not more than four or five minutes. A person suffering from congestion of the lower bowel, hemorrhoids, and troubles of that sort, is greatly relieved by the prolonged sitz-bath, a sitz-bath for twelve, fifteen to twenty minutes at a temperature of say 75°.

Q. My red blood cells have doubled since I came here. What is the matter?

A. You are getting well; don't be scared, the blood corpuscles never get too numerous.

Q. What is your opinion of the grape cure?

A. It is splendid. It is a sensible kind of fast. But the man who thinks he needs to fast, who thinks his body is clogged with poisons--what he needs is a protein fast; he needs less protein. The protein encourages the growth of poison-forming, unfriendly germs in the intestine, but the sugar which is found in grapes, and the acids of grapes discourage the growth of these unfriendly germs and encourage the growth of the friendly germs; so the grape diet is the best means of changing the flora of the intestines--one of the most effective means of changing the flora of the intestines. Over in Switzerland where they have grape cures, people eat fourteen pounds of grapes a day. Twelve to fourteen pounds is the average dose. Of course, they do not swallow the seeds or skins, but swallow the juice of the grape, and some portion of the pulp. The effect of this large use of grapes is to starve out the unfriendlygerms. The apple cure, the peach cure, the cherry cure--all these different cures are just as good. They simply starve out the protein-feeding germs, the poison-forming germs, the beefsteak germs, the meat germs, as Prof. Herter of New York calls them. These meat germs Prof. Herter has found in meat, and traced from the meat to the alimentary canal, and are the sources of some of our worst troubles. Bright's disease, gall-bladder disease, gall stones, colitis,--some

of the very worst troubles that people suffer from can be traced directly to these beefsteak germs that are found in the beefsteak, that are not killed by cooking, and when the beefsteak is eaten are introduced into the intestine, take up their abode there, infest the intestine just as bedbugs and cockroaches infest the house,--take possession of the body; and it is just about as difficult to get them out--one of the most difficult things in the world to get these disease germs out, to subdue them; but you have got to continually fight them. If you are once possessed of them, you have got to fight them all the rest of your life, and you don't want to introduce any more. That is the best reason I know of for not using beefsteak.

Q. Do you think bananas and oatmeal are the proper diet for diabetics, and why is not this diet used here in the Sanitarium?

A. It is; it is, our doctors are using this diet right along all the time.

Q. Are there any bad results obtained from lying down immediately after eating?

A. No; if you have a feeling of heaviness or pain in your stomach, or great weight or depression, no; but you should always lie down for half an hour or an hour after meals, but lie upon the right side and draw the knees up well, and take five very deep breaths every minute or two. Take five deep breaths every minute for five minutes, thenrest ten minutes, then deep breaths for five minutes more. Keep that up for fifteen or twenty minutes, and it will wonderfully relieve these heavy sensations, by helping the stomach to unload itself.

Q. Is an apple beneficial eaten just before retiring?

A. It encourages bowel action. It should be chewed very thoroughly. It sets up a little peristalsis that assists in the regular activity of the bowels.

Q. Why do all vines in twining around an object turn to the right, and why do all trees twist to the right if they twist at all?

A. I have seen several explanations of this. This is not a dietetic

question or a health question, but there have been several explanations. Some think gravity has something to do with it, but it really has never been well settled, so far as I have been able to ascertain, why. As a matter of fact, it is not exactly true. Vines don't follow this law absolutely.

Q. Of what value are oil enemas?

A. Oil enemas are better in some cases of colitis in which there is contraction of the intestines in which the water irritates. A little salt added to the water is valuable as an ade to avoid this. A tablespoonful of salt in a gallon of water will avoid the irritating effects.

Q. How would one traveling in Europe live up to the Sanitarium diet?

A. There is no trouble at all. At a first-class hotel, you can always get bread; generally you can get graham brot in Germany without any trouble. You can get whole wheat bread in England, and you can get graham bread at almost any first class hotel in France. One has no trouble getting good bread. Then you can always get vegetables, in France particularly, good vegetables beautifully cooked, plenty of them, and generally you can get fruit by taking a little pains. It is a good plan to carry a little box of nuts along in your pocket or trunk, pine nuts, pecans, or almonds. You can get plenty of blanched almonds and they are very cheap and good in Europe, and when one does not get a satisfactory mal, he can eat a handful of nuts after he leaves the hotel dining room. Go to your room, put a few nuts in your pocket, and you can get complete satisfaction. A little handful of nuts, well chewed have a wonderful amount of satisfaction in them, and a wonderful amount of nutriment.

Q. Should one who sleeps well the first part of the night, but is restless after two or three o'clock, take colax with the night meal?

A. He should avoid the night meal, or take colax and a little fruit with it, or just some little broth or something of that kind, but avoid bread and butter, pies, pastry and things of that sort. Take nothing but fruit along with the col ax.

Q. What is the best diet, exercise and treatment for one suffering from catarrh of the nose, throat and head?

A. Just simply get well. Do things that are adapted to you in a general way.

Q. Would malt honey be apt to disagree with a patient who has duodenal indigestion?

A. No, it would be beneficial to a person who had duodenal indigestion, to patients with duodenal ulcer. Prof. Herschel of London proved that by actual experiment--that maltose given at the right time, which means about two hours after a meal, at the close of the meal, is very beneficial, because it prevents the action of the gastric juice upon the mucous membrane of the duodenum which is the cause of ulcer. These are sometimes called peptic ulcers, because the gastric juice attacks the mucous membrane of the duodenum. The stomach is able to defend itself against gastric juice, nobody knows just how; but the duodenum is not so well prepared to defend itself against gastric juice when the gastric juice becomes excessive as it does through meat eating. Meat stimulates the stomach to make stronger gastric juice than is natural to the human body, so that the duodenum is not prepared to protect itself. That is a very important point. The dog is prepared to resist a very strong gastric juice. Prof. Pawlow showed that when a man eats a dog's diet, he has a dog's gastric juice. Now, the stomach is not able to resist such a strong gastric juice. That is, a man does not have a dog's stomach, nor a dog's duodenum; so when he eats a dog's diet and compels the stomach to make the dog's gastric juice to digest that diet,--in other words, whenone eats meat and gets the intensely acid gastric juice which meat produces, the human stomach is not prepared to withstand it. The duodenum is not prepared to withstand it. So contact with this powerful gastric juice corrodes the mucous membrane of the stomach and the duodenum, and that is the cause of ulcer. That is the great cause of ulcer. There is no doubt that the lowering of the general tone of the body and the general vital resist-

ance has a good deal to do with it, perhaps; but the real cause after all is the use of meat. Dr. Turck, of Chicago, a good authority in dietetics, in gastric troubles, has made a great number of experiments for the purpose of finding out the cause of ulcer of the stomach, and as the result of his years of experimentation he announced at a meeting of the American Medical Association a few years ago that he had disovered the cause of ulcer of the stomach. It was in a discussion in the surgical section of the association, and the talk was about what should be done for ulcer of the stomach. He arose and said, "Gentlemen, you do not kow anything about ulcer of the stomach. Ulcer of the stomach is a meat eater's disorder, a meat eater's disease; it is caused by meat eating and must be cured by discontinuing meat." Anybody who has once had an ulcer of the stomach should never eat meat again as long as he lives. He should cut out meat entirely because the meat makes gastric juice which will digest the beefsteak, and a gastric juice that will digest beefsteak will digest the stomach; so you don't want that kind of gastric juice. Sooner or later it will take a bite out of the stomach, and then you have got an ulcer. That is the way the sheep gets even with us, don't you see?--the way these animals get even with us, the way we are punished for violating the great laws of Nature.

Q. How can a dilated stomach be remedied?

A. The best thing is to avoid overloading it, avoid taking too much fluid, too much food; take small meals, rather dry and concentrated foods. The application of the bandage is a very great advantage, because it gives support from the outside which is very helpful.

Q. Is it possible to have complete recovery from a nervous stroke of apoplexy?

A. If it is only a nervous stroke, you will recover entirely. If it is due to degeneration of the blood vessels, it may be partially recovered from, but not completely. You may be apparently well, just as well as ever, but of course the blood vessels still remain brittle and another attack will come.

Q. If water-drinking is so healthful, why isn't it placed on all the floors of the Sanitarium?

A. The reason why we do not have it on all floors of the Sanitarium, is because we could not have it so cool and in such good condition as we can when it is brought from one place. We have bellboys who are very glad to supply your wants at any time. If they are not attentive enough, let us know, and we will see that the matter is remedied.

Q. What diet should one have with acute duodenal catarrh?

A. A soft diet, soft cereals, in the form of gruels, ~~mixed~~ not oatmeal mush and such things, but such things as gluten mush, granola mush, and granose biscuit whichhave been softened with a little fluid of some kind, a little hot cream, for example; and this food should be swallowed without chewing. That is one instance in which we should avoid fletcherizing.

Q. Would six or eight hours' work be detrimental to one having a hypersensitive nervous system?

A. It depends on the work, on whether you enjoy your work. Certainly drudgery or very taxing work, work that requires very high tension--seven or eight hours would be too much.

Q. Is gastro-intestinal catarrh curable? A. Yes.

Q. Please tell us where one can find a climatic cure for nasal catarrh.

A. There is no such climate--no climate that is free from nasal catarrh. Nasal catarrh is a disease that comes from within and not from without. It is the climate of the dinner, or the season of the dinner table rather than the atmospheric season that makes the trouble. Catarrh is due to low vital resistance. Autointoxication is the most common cause. The proper place to treat nasal catarrh is in the colon. The same thing that makes catarrh of the colon makes catarrh of the nose and of the throat and of any other mucous surface.

Q. What causes large brown spots on the face?

A. Autointoxication, poisonous brown coloring matter formed in the

colon, absorbed into the blood which ought to be destroyed by the suprarenal capsules of the kidneys, ought to be destroyed by these organs, but they get worn out after while and can not destroy this poisonous matter, so it accumulates in the blood, is deposited in the skin and that makes brown pigmentation on the hands, and those brown spots on the face, and the brown color around the eyes, and the gneral brownish tint of the skin, the dingy tint which people have when they are not well.

Q. If rheumatism is caused by autointoxication, why does the weather have such an effect?

A. A person who is rheumatic is a barometer. There was a man down in Philadelphia some years ago who had rheumatism in his heel, and he knew whenever a storm occurred on the Gulf of Mexico. He got the news before anybody else did. There were twinges of pain in his heel. His case was published, and it was really a very remarkable case. The claims of this man seemed to be verified--that he could tell where there was a storm anywhere. Probably the real fact was that there was a storm going on somewhere most all the time, and his rheumatism kept his heel twinging most of the time.

Q. Should one who is working on a farm take corrective gymnastics?

A. No, but he should do his work in such a way that he would not need any corrective gymnastics. One can double over and saw wood in this way, or he can stand up and saw wood in the proper way. Dr. Sargent, who is the director of the Harvard gymnasium, one of the most eminent teachers of physical culture in this country, did the training which built him up and made him a strong man on the farm. He said he wanted to become a gymnast, and he said, "It occurred to me that I can make this farm work gymnastics; so when I am going to pitch up a forkful of hay up on top of a load, I will put myself in good position, get my chest out, and take that exercise with my body in the best possible position. And when I am hoeing, mowing, or chopping wood, I will take pains to stand in the proper position"; so he did that and trained himself with farm work. So

one does not need any corrective gymnastics when he is doing farm work provided he does it right, but if the farmer, as you see him very often, sitting up on the top of the fence or on a load going to market, all doubled up like a jack-knife with his elbows on his knees,perhaps, and completely doubled up, his back as round as a barrel--is the farmer is so careless as that with reference to his attitudes, he gets all out of shape, gets flat chested, gets hollow in front and humped behind. It is not because of his work that the farmer gets in bad shape and needs corrective gymnastics; it is because of neglect of his body. A wild Indian has more respect for himself.

Q. What is the reason for large veins on the hands?

A. It is evidence of a relaxed condition of the vasomotor system.

Q. What is the cause of neuritis?

A. Neuritis is due to infection or to toxemia, generally due to auto-intoxication, sometimes due to wounds, may be due to a strain or a bruise.

Q. Can you treat hay fever successfully?

A. Only with partial success. We have some ragweeds and golden rods growing about the country, and some people are very susceptible to them. Such people sometimes are not perfectly relieved. As a rule, however, such persons may be greatly relieved by treatment here. I have noticed recently it has been recommended that persons suffering from hay fever should spend half an hour every day or twice a day in a room with a very low temperature. It has been tried in some places apparently with very good results. We have a case here in which we are now trying this plan, and we will see how it works. I don't see why it should be successful, but it seems to be. A person who has hay fever can be entirely relieved at once if he will shut himself up in a romm and filter all the air that comes into it. Drive all the air into that room by a fan, filtering the air through cotton, taking all the germs and spores out of it, and a person may be comfortable anywhere. He can be very comfortable by putting a cotton filter over his face and nose, but the difficulty is it is hard to breathe.

Q. When is the abdominal bandage indicated?

A. When the abdominal walls are relaxed, and the stomach, bowels are prolapsed, it is a very great advantage.

Q. When are hot fomentations to the bowels indicated?

A When there is pain, and also when there is colitis, because colitis causes spasm of the bowels, and a hot fomentation will relieve that spasm.

Q. What is the function of the mesenteric glands?

A. They are defenders of the body. Their function is to capture germs, defend the body, and to destroy poisons.

Q. What causes the enlarged glands in a child's neck?

A. Tuberculosis; tuberculosis from cow's milk; that is the principal cause. In some schools 95% of the children have been found with these enlarged glands. By and by this tuberculosis gets down into the lungs in some cases.

Q. Why do you exclude domestic cheese from your articles of diet?

A. Cottage cheese is all right, but the ordinary cheese is a product of decay, molds, and yeasts, and putrefactive germs and various other sorts of germs work into the cheese from the surface down; molds work from the surface down into the cheese, and the cheese is softened by a process of decay.

Q. Is there a cure for neuralgias?

A. Yes, neuralgia is curable by removing the cause.

A. Should or should not a person suffering from hyperacidity eat much ~~bread~~ fruit?

A. It depends on whether the fruit increases pain. If it does, he should avoid it; otherwise not.

Q. Is icthyol objectionable?

A. It is; it is a poison. It is not very poisonous, may be used in small amounts without detrimental results, but it is not a curative remedy.

Q. What is the best remedy for dizziness in the head?

A. Get the poisons out of the body. It is generally caused by poisons.

Q. What are the first symptoms of Bright's disease?

A. One of the very earliest symptoms is high blood pressure. When the blood pressure is high, 160, 180, 200, it almost invariably means that the disease of the kidneys is beginning. It is disease of the arteries, and with disease of the arteries there is disease of the kidneys.

Q. What causes itching of the skin?

A. It may be due to simply a hypersensitive condition of the skin; may be due to an eruption.

Q. Can rheumatism of the joints be cured?

A. Yes, if we begin soon enough, and soon enough means before the joints have become stiff and before they have become much enlarged. The disease may be arrested at almost any stage, but cure must be begun very early to be complete.

Q. What are the symptoms of a diseased liver?

A. The liver is sometimes contracted. Pain in the region of the liver may be a symptom of diseased ducts of the liver or gall-bladder. Soreness under the ribs, pain opposite in the back in this region, and tenderness in that region, especially in the right side is an important indication of gallstones or disease of the gall-bladder. This condition of the gall-bladder is not nearly so common as many people suppose. Most pains and symptoms attributed to gall-bladder disease or liver disease are really diseases of the stomach or duodenum.

Q. Is there a sure cue for seasickness?

A. Well, about the best remedy is to lie in your berth until with your eyes closed and an ice bag at the back of your neck and another one at the pit of your stomach. A person can be very comfortable even if the seas are rolling very high and the ship is pitching a great deal and you can not stand on your feet a minute--you can be very comfortable by having an ice bag at the back of your neck and at the pit of the stomach; and lying in bed with your eyes closed. Having the eyes open increases greatly the sickness. Another thing is to keep your stomach empty, drink plenty of water. If it comes up

again let it come; it rinses out poisons and so relieves you, makes you more comfortable; but drink plenty of water and avoid eating. Take a little dry cracker, perhaps, a toasted water cracker with some hot water. Be sure to keep the bowels open and have them well cleared out before you go on shipboard.

Q. What is the latest information the medical profession have with regard to cancer?

A. The latest information is that cancer is a disease of meat eating races of men and animals. Fishes are particularly subject to cancer, and that is another reason for not eating fish. The government fish hatcheries, every one of them, is infected with cancer. Every one of the government fish hatcheries in this country is infected with cancer. The disease is hereditary, attacks the thyroid gland, and a great lump appears just back of the gills of the fish. It is found the eggs communicate the disease. There was sent to Australia three years ago a large quantity of eggs of trout from this country--trout is affected more than any other fish,--and after reaching Australia, when the eggs hatched out, there turned out to be a great number of cancerous fishes, so American cancer fishes have been communicated to Australia. Every lake and stream of America has been infected with these cancerous fish. The gournment the last four or five years has been simply scattering cancer broadcast throughout the United States. Last year President Taft asked Congress to appropriate fifty thousand dollars to investigate the cause of cancer in~~xxxxxxxxxxxx~~ American fishes. I talked this matter over with an eminent pathologist a day or two ago, and he told me he had examined them with the microscope, and they are so nearly like cancer in human beings nobody could distinguish the difference--the worst form of cancer, that which is known as carcinoma.

Q. Why should I have sour stomach after three months steady on the antitoxic diet and nothing else?

A. Well, perhaps you didn't eat quite enough fat; perhaps you chewed your food too much. Take the remedy I suggested a little while ago; eat soft

food, do not chw it at all; take plenty of butter and cream with it, and I think that acidity will disappear. Granose biscuit will be a very good bread for you to eat, softened with some hot water, and some butter on it if you can not take cream. Do not chew, do ot chew the food to any great extent--just enough to swallow it if you have hyperacidity and it does not yield readily to less vigorous measures.

Q. Is the sweet milk and cream served here better than the ordinary?

A. Yes, the sweet milk and cream we have here is produced under special care from cows that are inspected, that have had the tuberculin test and are known to be absolutely clear from disease,--very expensive cows, cows that cost about three hundred dollars apiece, and they are very valuable cows, the very finest breeds, and some of them cost more than that. The dairy is kept for our special benefit by some members of the management here, who have a fine farm that formerly belonged to the institution, and they undertook the task of carrying on on a dairy to furnish milk to the Sanitarium, and producing it under the wry best conditions possible. I stepped into their stable a little while ago, and it looked as clean as anybody's kitchen. It was absolutely clean, free from odors, and the greatest care is taken with the animals. They are sprayed before milking and were washed, so everything was done with the greatest cleanliness and care. One could sit down ~~thm th~~ on the floor it was so clean, and eat a meal without the least bit of repugnance. The milk is examined every week by our bacteriologist, tested so as to see that the standard is up to the very highest mark. The commercial milk produced in the country generally, we do not use in this institution~~x~~ without sterilizing, and sterilizing with us means boiling. It is boiled, the cream is boiled, and the butter is made from cream that has been boiled, so that the disease grms will be killed. We do not allow ordinary butter or milk to be used in the institution at all, and have not for more than twenty years. We have taken these precautions since they were first known, in order to do our patients no harm when we are trying to do them good.

Q. Is there any real cure for catarrh of the intestines?

A. Certainly, every case is curable.

Q. Do you condemn the use of eggs?

A. They are ot the best food. They are comparatively good, particularly the yolk of the egg whichis the real food part of it; the white of egg is intended to make the chickens legs and feathers, and the other part of the chicken, but the yolk is the food, the little luncheon put up for the chicken to use on its way out of the shell while it is in solitary confinement; so it is the best part of the egg. It weighs half as much as the white, and has twice the food value of the white. The yolk of the egg consists of one half water, one third fat, and one sixthx sixth protein.

Q. Should bran be taken with the meal or after it?

A. With the meal, or afterward if you choose.

Q. What might cause a burning and sensitive condition of the right side back of the head, attended by complete giving out of the whole body?

A. These pains in the back are really reflex pains. It means something wrong with the viscera, a congested condition; it may be a colitis. Pain in the back is more commonly due to an infected state of the colon, colitis, or a catarrhal state of the cecum, or the descending colon or sigmoid flexure, which is the lowest part of the colon,--more commonly due to these troubles than to almost any other. These pains in the back often frighten people; they think they are getting some spinal trouble. A lady came here some time ago with her back completely covered with scars. She said her doctor used mustard plasters until they would not draw any more, then used Spanish fly blisters till they would not draw any more, then put on croton oil mixed with oil until it would not draw any more, and by and by used pure croton oil, and after while that would not draw any more, and lately he had been using a hot iron. That is what that poor girl had gone through in treatment for her back, and there wasn't a thing the matter with her back; but I put my finger at the pit of her stomach, and the

moment I pointed my finger toward her, she was afraid; she knew she had a sore spot there. The whole trouble in that case was with the front side of her back instead of with the back side of it. The front side is generally overlooked, and that is where the trouble usually is.

Q. What should be done to bring about a normal condition of the blood?

A. All you need is a little time and your blood will come up to normal. You have now almost as much as you are entitled to--98% of red cells--that is almost enough. You have as many white cells as the normal. The color index of 67 means simply your red cells are not quite as good quality as they ought to be. Go right on masticating your food, chewing it, taking cold baths, getting the fresh air, taking deep breathing, keeping the chest up, and livingrightly, and by and by your blood cells will get up as high as they ought to be. They are improving right along all right, and yu need not be worried a bit.

Q. What is best to do for one with slow digestion?

A He should eat foods which aid digestion. In the first place he should thoroughly masticate his food, chew it a great deal. Why? Because chewing the food encourages the stomach to make gastric juice. While you are chewing, the stomach is pouring out gastric juice under the stimulus of the gustatory nerve. The gustatory nerve notifies the stomach there is food coming; hurry up to make some good gastric juice to digest it. And the stomach rolls up its sleeves, so to speak, goes to work when it gets that kind of notice. If you swallow the food post haste, the stomach doesn't get any notice at all, and the food is landed down there in the stomach, and before the stomach knows it is coming; there is no gastric juice ready for it, and you lose the benefit of half the value which the food contains. Every morsel of food contains substances which serve notice on the stomach through the tongue and the gustatory nerve,--these substances called peptogens which are in the food, flavoring substances, serve notice through the gustatory nerve upon the stomach that food is coming, and notify the stomach what kind of dofood is coming, so the stomach is able to

get ready for it . That is appetite juice. Persons with slow digestion must take great pains in chewing; chew, chew, chew until you get all the taste out of the food, then you willget all the appetite juice that is coming to you, you see, all that the food will require . Another thing of very great importance is to eat foods that encourage the gastric secretion, and one of the most encouraging foods I know of is malt honey. That is one reason why we recommend it,--because it contains peptogens; and the experiments of Pawlow showed that the substances which are found in malt honey are among the most powerful peptogens known. They stimulate the stomach. An ounce or two of malt honey at every meal would be a real help to your digestion if you have slow digestion; also the same thing is true of starch which has been held in the mouth and digested in the saliva--that starch is peptogenic.

Q. What is lithemia?

A. It is a kind of medical myth. It is a word that was k coined long ago when it was supposed that most chronic diseases were due to the accumulation of uric acid in the body. Now, we have found out that uric acid is not such an awful poison as we thought it was. It is bad enough, but it is a comparatively harmless substance when compared with those awful poisons that are produced by putrefaction in the colon. Now it happened that uric acid came along with meat eating, so it was thought it was uric acid that made the troub,e but it was not uric acid at all. Now, along with the meat came other things besides uric acid, particularly these putrefactive poisons that came from decomposition of the meat down in the colon.

Q. What causes a burning sensation of sometimes the whole body, and again some portions of the body?

A. That is a condition of irritation of the skin which is due to irritation by toxines absorbed from the colon and irritating the nerve ends, the tip ends of the nerves that are found in the skin.

Q. I am 55 years old and troubled a good deal with pain in the back

between the shoulder blades. What is the trouble?

A. Examination of a point just below the sternum will doubtless show a very sore spot there. You have a sensitive solar plexus. That doubtless means a congested stomach, and the stomach probably contains too much and too acid gastric juice.

Q. What is the most effective cure for autointoxication?

A. Eat right; eat food that germs can not live on, that starve out the poison-making germs. Live on an antitoxic diet.

Q. Is chronic colitis curable? A. Yes.

Q. What will reduce a fat stomach?

A. There are two things necessary: eat less and exercise more. Eat less and work more. That is the thing for the fat stomach. The reason why the fat accumulates about this part of the body is because these muscles are not used enough,--just as it is with any other part of the body. The hands are seldom fat, and the arms are seldom over-fat. It is the hips, this part of the body, because these muscles are used less, and the blood vessels carry the blood there and, not being used up by the muscles, is deposited as fat, you see. Now, set those muscles to work and they use up the elements brought in the blod, so there will be nothing to deposit, and that fat will be used up. Well, I see I have got to the bottom of the box. I thank you for your attention.

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A Lecture at the Sanitarium Parlor, Battle Creek, Mich., Thursday, September 21, 1911, at 8:00 P. M.,

By,

J. H. Kellogg, M. D.

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I hope you are all counting your calories so as to know just how much you are eating, and whether or not you are eating enough, or too much. A short time ago I gathered up 100 bills of farein the dining room, marked just as they are given to the waiters, and had one of our mathematicians run them up and find out the average, and I was very much surprised to find that the average patient does not eat enough. Somebody had been telling me what great quantities of food some people were eating up there in the dining room, and that something ought to be done to stop it; so I said I would see about that, and when I got the average of the 100 bills of fare, I was very much surprised to findx that the average man or woman in the institution here does not eat enough. Why is it? Is it because you don't like the food? Because you have prejudice against it? I guess not. I think it is because you haven't appetite enough. The way to get a good appetite is to go outdoors. This cold air that is coming on pretty soon now is the greatest possible blessing this institution enjoys. We are always glad we are in Michigan where we can get some frost and snow. A great many times I have had invitations to mow the Sanitarium to the South. It would not be possible to do that, but if it were possible, I should not want to go. I would rather go north than south. Why? Because the cold air is a tonic that works all the time. Now, we are having every year an increasing number of people that come north to spend the winter with us. We have seventy-five or a hundred people here all the winter long from the far South. They find that they do not suffer from cold. A gentleman said to me the other day, &When I advised him to spend the winter here, felt he needed it--he has coming on arterio-

sclerosis and he has just got to battle for his life; he has got a six months' job on his hands if he does not want to ~~fixm~~ have a funeral pretty soon, and there is a good chance for him to win out if he will just stick right to it. Three or four years ago we had a case of a lady with a blood pressure of 240. She got discouraged and went home. Her husband sent her back, fortunately, and it was more than six months in her case; she was here two or three months, went home, andher husband sent her back, and she was here four or five months more, and at the end of that time, he blood pressure was down to 124. Don't you think that paid? That was five years ago. That ~~mmld~~ woman would have been in her grave long ago if her husband had not had good sense enough to tell her that while she was indispensable at home, he would manage to get along. She went home because she thought her husband could not run the business without her, and really she was essentialto his business. She was really the most important part of the firm in that particular case, but he said, "We will sacrifice the business, let it go." Now, if you could see that woman who came here a poor, pale, sad looking woman, feeling that she had but a little while to live, with the pallor of death almost upon her face,--that woman today is a rosy cheeked, bright, active, vigorous woman, leading a most strenuous life. If I should mention her name, you would know her, because she is known throughout the whole United States. But I do not want to mention her name because she is so thoroughly recovered I don't think she wants anybody to know that she had arteriosclerosis and a blood pressure up to 240. Well, she was fifty years old too. She just simply tuck right to it, adopted the low protein diet and adhered to it. I don't think she has tasted fish, flesh nor fowl since she was first here four or five years ago. She has beenhere once since that, but didn't need any special treatment.

The important thing for every one of you here is to learn how to live. How to live--that is the important thing. How strange it is that every creature in the world except man knows how to live without being taught. Why, there is not a beast on the face of the earth that don't know what to eat. Man is the only

animal, the only creature that has to be told what to eat. Just think of it. It is not a complicated question; it is the simplest thing in the world. If one only stuck to Nature; but the difficulty is custom has established so many precedents, so many errors, and so many evil customs, evil practices,--custom has established so many that when one begins to look around to see so many different things that are on the ordinary bill of fare, that are customarily eaten, he does not have any natural instinct to guide him; these things are all artificial; there is no natural instinct to lead him, so he has to make a selection, has no guide but custom. But now if we were to take a lot of boys and girls that have been brought up in a suitable way,--suppose we would say we would take a lot of babies two years old and had been fed nothing but natural food and had been nursed for two years--babies sometimes are in some countries,--and take these babies into the woods, into a forest where there were fruits and nuts and squirrels, and succulent twigs, and tender leaves, and bears, foxes, wolves and various other things, and birds, what would you think those children would eat? What would they lay hold of? The fruits and the nuts; so far as they could they would make use of those things; but which one of those children would ever think of catching the squirrel to eat? Suppose none of you had ever seen flesh meat on the table, had never seen anything killed, had never heard of killing, would it ever occur to you when you saw a beast, saw an animal eating, for instance, saw an animal eating we will say, an ear of corn, or saw an animal eating a cocoanut--would it ever occur to you--just think of it for a moment,--that you should slay that animal and eat the animal? A lady told me that she once saw out in the Samoan islands a dog and a chicken and a baby all making a meal off the same cocoanut, taking turns, first one a bite, then the other. Now, it never occurred to that chicken to eat the dog; and it seemed in that case it didn't occur to the dog to eat the chicken. Certainly it didn't occur to that ~~xhixdxx~~ little Samoan boy to eat the dog or the chicken. They were all satisfied with the same cocoanut.

Now, we have gotten away from our natual instincts so we don't know how to eat; we don't know what to eat; we don'tknow how to live. We have been sort of hampered by being penned up with our common dum animals. I said to a little girl one day, "What would you rather be, a great, big, splendid horse that could pull a great load, or a wild horse in a forest? Which would you rather be?" She said, "Oh, I would rather be the wild horse." I said "Why?" "Well," she said, "because if that great horse was left alone, he would not know any better than to go and stand with his nose over the fence and starve to death; but if it was a wild horse, he would know enough to rustle around to find something to eat." Now, there is something in that. The cart horse has always been fed, always had everything prepared for him, never was educated to take care of himself; and that is the way that is, you see. A farmer away off somewhere raises the food, sends it on and it goes to the miller, and the miller grinds it up, grinds the wheat, and the baker makes it up into bread, and by and by it gets on the table somehow, and we don't know how. I learned of a girl of twelve or fourteen who went for the first time out into the country, and she saw a cow being milked, and she inqûred about it, and found that was the milk she took at the breakfast table, and she was astonished; she was amazed; she hadn't the slightest idea of how milk was produced, where it came from. She thought it was something marvelous. We do not know very much more. There is meat, beefsteak, chops and those things; the average man or woman, certainly the average child has not the slightest idea where those things came from or how they came,--the awful things that are maintained, the awful institutions that are maintained, the torrents of blood that are pouring down into the rivers and creeks, because of the slaughter of these animals. There is enough blood shed in the great packing establishment at Chicago to float "The Great Eastern", every year. I figured that out some time ago. About one fourteenth of the weight of an animal is blood, and it has been figured up the number of oxen and pigs and sheep that are killed, and figure up that one fourteenth of it is blood poured out--no, it is

not poured out; they save that blood now and manufacture it into blood puddings and things, and can it up, and make beeftea of it. That is the special thing it is made into--beeftea, extract of beef, and things of that sort; it is all converted into something. Mr. Armour says there doesn't a thing get away from him when he kills the pig but the squeal. That is the only thing that is not utilized.)

Well, now, our food comes in that way, through these great, artificial establishments, and it comes upon the table, and we don't know anything about its origin, so our natural instincts have no opportunity to play; but if we were out in the forest, our instincts would lead us to our natural diet of fruits, grains and nuts. We haven't lost it altogether. I began to say a little while ago that the important thing for you here my friends, the most important thing, the most valuable thing you can possibly get here is a knowledge of how to live. Beter living is the thing the world needs.It is a more important question than any question that is before the political world at the present time,--the question of how to live. It is a far more important question. Our politicians have not yet discovered that if they do not do something to stop the downward tendency, the degeneracy, the detsioration that is going on in the race, the time will come when there will be no governmets to govern, there will be no people to govern. The people by and by will entirely lose the power of government, because they will lose their sense, they will lose their judgment. Insanity is increasing at the rate of 300% in fifty years. Other maladies are doubling in twenty-five or thirty years. Heart disease kills four times as many people today as it did ten years ago. That is a terrible thing to contemplate. Cancer is increasing at a frightful rate. Sixty years ago cancer killed nine persons in every hundred thousand--almost one person in every ten thousand every year. At the present day, the cancer death rate is one in every thousand--ten times as great, and in some places more than that. Why, in Denmark, for instance, 157 people die of cancer evey year in every hundred thousand--157 people

in every 100,000, fifteen people in every ten thousand, nearly sixteen--that is a terrible thing. Now, it is not so in all parts of the world. In Malta, for example, the death rate from cancer is only eighty in a million. Instead of the 1500 and some odd that die in Denmark, there are only eighty. In Denmark they use a great deal of pork and whiskey also. And the same thing is true of Switzerland, one of the most densely populated civilized countries of the world. The death rate from cancer is almost 1600 to the million,--the annual death rate.

Pigs have a greater mortality from this disease than human beings. Cats and dog have a still greater mortality. (Eight per cent of all dogs die of cancer. Five per cent of all human beings in America will die of cancer. One out of every seven of all women who died between forty and sixty years of age in the year 1909 died of cancer. That is an awful thing to thik of--one out of every seven of the women living in the United States at the present day between the ages of forty and dixty years is certain to die of cancer. One out of every twelve of the men living at those ages is certain to dieof cancer. There is not one single day in this institution that we do not have people here that are facing death from cancer,--not one single day. The number is increasing so rapidly that it is getting to be a frightful scourge. It is the monster malady that is going to swallow up the race if there is not something done to stop it.

Now what are the causes of it? We do not know absolutely all the causes of it, but two things are thoroughly worked out, and that is that cancer is a disease of civilization, and that cancer is a disease of meat eating races of men and animals. Civilization and meat eating--those two things put together.

Now, I think the worst thing that civilization does for people is to produce inactivity of the bowels. Read the newspapers, read the patemt medicine advertisements wherever you find them, and you will find ten of these advertisements are advertisements of something for moving the bowels, where there is one for anything else. There are simply trainloads and trainloads of medicines of various sorts that are sold for moving the bowels. Intestinal inactivity is

one of the most blighting things that civilization produces. Now meat eating and inactivity of the bowels--put those two things together and you have the worst combination you can possibly conceive of. You have meat, an article that decays, that putrefies; then this meat through the inactivity of the intestine is left to decay in the intestine and rot and decay an indefinite length of time, and all the poisons to be absorbed into the body, deteriorating, depressing, devitalizing the body, producing degradation and degeneration. That lays the foundation for cancer. That creates a soil on which cancer can grow. The human alimentary canal is adapted to a different sort of diet. The human intestine is ten times the length of the body and consequently is adapted to foodstuffs which do not readily undergo decay. Now, a carnivorous animal like an eagle, for example, has a very short alimentary canal, only about twice the length of its body; one fiftieth as long in proportion as the human alimentary canal; so the eagle is able to live quite a long life on a flesh diet; nevertheless, eagles and vultures, all flesh eating birds are extremely subject to cancer. That fact was pointed out by an eminent English authority only a very few years ago, that eagles and vultures are very subject to cancer. Now, human beings are subject to cancer because they try to live on the turkey buzzard's diet, don't you see? The turkey buzzard diet leaves a man subject to the turkey buzzard's diseases. If a man lives on a dog's diet, he is going to die of the dog's maladies. When a man is dying of cancer, he has that thing to think about, that he is dying like a dog; that is, he is dying of the same disease of which a dog dies. He is suffering from the same cause. Now, it is not a pleasant thing to contemplate. I can not think of a thing more horrible to think of than death from cancer. ~~Hi~~ I would rather have leprosy, I would rather have tuberculosis, or any ~~oth~~ other disease that I know of than cancer. And yet we find that one out of twenty of all the people of the United States on the averag, one out of twenty must die of cancer. Of the women, about one out of ten of all women have to die of that awful disease. That is a most terrible thing to contemplate, my friends, and it

is getting worse every year. Think of it,--an increase of a thousand per cent,--an increase of a thousand per cent nearly in only sixty years. Why, it won't be very long before there will be cancer in every family. Today there are 500,000 people in the United States infected with cancer,--five hundred thousand people, half a million, one in every 200 of all the people of the United States have got cancer today and are likely to die of it. There is no cure known for it. I am expecting to start for Europe next week--I just mention this incidentally,--and one reason I am going is to see if I can find out anything new about cancer, find out anything that can be done. Over at Heidelberg, at Prof. Czerny's clinic, a certain doctor claims he has found the real thing that causes cancer--a parasitic disease which preys upon people when the body is degraded sufficiently; then this parasite takes possession, and it grows and produces poisons which finally result in cancer, and he claims to have found a method of curing it. I am going over there to see if I can find out something about it. Prof. Ehrlich who discovered the antitoxin that cures diphtheria has been investigating cancer for some years, but he does not publish his results. His assistant published one thing, and that was this: He found he could inoculated cancer, transmit it from one animal to another,--he could inoculate a mouse that had cancer, could take some of that cancer and inoculate it into another mouse, and it would grow and develop. He found that when he fed mice on rice, on a diet of rice, he could not inoculate them with cancer. Cancer would not take, it would not grow; and moe than that, he found that when mice had been inoculated with cancer, and the cancer had produced large growths, great lumps of cancer, and they were put upon a rice diet, the cancers disappeared. Now, the mice died. Prof. Ehrlich did not know why, but an eminent English physician has shown within the last few months the reason why,--a committee of English physicians who took up the study. They have found that mice did not die from starvation, but they died of beri-beri; they died of the same disease that the Japanese had from eating polished rice. The polished rice gave them beri-beri, and that is why they died. Now, if they

hd had unpolished rice they would not have died. I am going to take some unpolished rice over to Prof. Ehrlich and ask him to try the experiment again with unpolished rice. I can not see any reason why the mouse should die on a diet of rice.

But I must tell you a little more about that. Prof. Smith, of England, I think it was, who made the experiment, found that fine flour bread produced exactly the same effects as rice. When mice were fed on fine flour bread, they died, and died of beri-beri just the same as when fed upon polished rice. So you see we have got to renew the battle against fine flour bread. There isn't any question about it, we have got to take it up. We have got to push it a good deal harder. Prof. Graham, Sylvester Graham, seventy-five years ago nearly set out on a campaign in behalf of wholewheat bread, graham bread. That is where graham bread got its name--was from Sylvester Graham, a clergyman who had studied law, a man of great culture, living in Connecticutt,--he started out on a campaign of food reform, and induced thousands and thousands of people to adopt the coarse graham bread in their dietary. By and by the patent flour millers came in and they said patent flour had all the value of the bran in it. So the people were sort of deceived about that thing. More recent investigations show that patent flour is not a particle better than the old fashioned fine flour so far as this point is concerned. It is lacking in lime. The whole wheat contains four grains of lime to the pound, and with the lime the phosphoric acid which is very essential for the building up of the nervous system, and when the grain, the flour lacks lime, it also lacks phosphoric acid; it lacks the nerve food elements. The whole wheat contains four grains, and the fine flour only one grain. Though as a matter of fact, the bran itself contains a great deal, something like twenty or twenty-five grains to the pound. So we have got to institute a reform on this.

I have another reason for going to Europe. It is not necessary for us to go over there, but I usually make a trip there once in four or five years to find out what the specialists are doing in this place, that place, and the other.

I want to know what the bacteriologists have found out new about the germs in the stomach and intestine. If there is anything new that has not been published, I want to get hold of it. By going to the laboratory, you can find out a lot of things that have not been published. Sometimes a man who is making an investigation finds out certain things he does not expose to the world for ten years. He has knowledge that is all locked up there, but he does not know the practical bearing of it. He doesn't know how valuable it might be. By going right into the laboratory and having a conversation with the man you get the information. I have found it necessary sometimes to pay good big sums for the information I wanted, but I do not hesitates if it costs five hundred dollars or a thousand dollars, or five thousand dollars,--the thing that will be of any help in this inatitution, any help to our sick people in getting well, we get it. We send two or three of our doctors abroad every year, and in different parts of this country to gather up all the information we can get that will help sick peopple to get well. We want to give the sick man who comes to this institution the very last best ?
chance that it is possible for him to have; we want tog give him every possible help he can possibly have in his battle for health. We do our best to keep right in the front row of progress. We find out a good many things here, but there are specialists in various lines that are finding out wonderful things. I got some very valuable information four years ago when I was abroad, went to St. Petersburg to see Prof.Pawlow, and got a great deal of very valuable information. I wanted to know what Prof. Pawlow was doing; I wanted to know what was being donw in Berlin, Paris, London, Vienna, Lausanne and other of the great centers there where there are men of genius who are at work on special things. One is working on one subject, another on aother, and another on another,; and the most remarkable thing about the men who make these wonderful discoveries is that in the great majority of cases they do not make any practical application of the discoveries they make. Sometimes they do not have any opportunity to do it. They read a paper before some scientific body, and it is filed away in the archives,

and nobody knws anything about it. I improve opportunities, when I go abroad, to get into those musty archives,pull down the dusty tomes and look them over to see what has come out since I was there last. I don't go over to rest. I don't have time to rest. I always have some one along with me to take notes,-- work on the cars, on the boat, and work just as hard as I do at home or a little harder, if possible, and with an eye single to the interests of this institution. I have ben abroad five times, and I never spent a week all put together in seeing Europe. I have passed by the interesting things. I have been in London a godd many times. My wife was with me the first time when I was abroad, and I spent a couple of days seeing London. That is all the time I ever spent seeing London. I spent one day in Naples and four days in Rome, and a half day in Venice, and that is about all I know of the cities of Europe. But I know something about the hospitals of Europe, and the laboratories of Europe, for those are the places that interest me. On my first visit to London, I landed in London on Saturday afternoon, and the next Monday morning I was in a cancer hospital. That was twenty-eight years ago, and I spent every minute of my time that I could spend with any profit in that place till I had learned what I could learn there; then I moved on to Paris, and so on. I could learn about Europe from books, and the mere gratification of my curiosity, while it is as acute perhaps as anybody's, I don't feel at liberty to indulge. I see so many people looking to me for help and expecting me to give them help, asking me questions every day, that I can't answer, coming to me every day, saying, "Doctor, can't you help me?" and I have to say, "No." My friends, that is a burden upon my heart; it burdens me every day; it follows me at night to; I dream about it, and it worries me, and I am going to Europe to try to get that burden off my soul. There are a whole lot of people that come here that we do not do as much for as we want to do, as we sbuld like to do. I met a man at the door just as I was coming in here, and he said, "Doctor, what can you do for me?" I said, "I will tell you when I get back from Europe. I have made a search in this country to see if I could get

get any help. I went up to Rochester, Minn., a few days ago to see the Mayos who are men of genius, and I found they are in the same trouble we are. Mr. Will Mayo took me home with him to lunch, and we compared notes, and I found he was in just the same trouble with certain classes of cases, particularly patients that have these redundant colons, great loops, tangles and kinks, and all that sort of thing; they are the terror of my life, my friends. I frakly tell you that thing, and we must know the last thing that can be done for these people. I am perfectly free to say that we do a great deal more here in this institution than is done anywhere else in the world, by the correction of the diet, because you can readily see the correction of the diet and the suppression of these horrid ~~xxx~~ putrefaction germs, and the ~~x~~rious means for helping to overcome these obstacles that were set in operation here will accomplish a great deal, and do a great deal more than could be done without them. I found, for instance, one surgeon who is cutting out colons,--Dr. Lane, of London. Dr. Lane has very kindly invited me to visit him and to see what I can among his patients; and I want to study his patients. I don't care so much to see what he is doing, because we know how to do that. The surgery is simple, but the question is to know the results of what he is doing. I want to see his patients, I want to see a lot of them; I want to talk with them, to know how they felt before, and how they feel now, and get that part of it. I said to Dr. Lane, "When you don't cut the colon out, what do you do?" "Oh," he said, "I have them lie down with the hips elevated a couple of feet." "Well," I said, "what for?" "Why," he said, "to drain out the cesspool." "Well, is that all you do?" "Yes." Now, gravity can do a good many things, but you see some of these loops come down in different ways, and they are all tangled up, so that simply lying down with the hips elevated a foot and a half or two feet might work for a while, but one can't ever know just how long they should lie this way, or that way, or this way again in order to make gravity work out the problem. We have got to do something more; something more can be done, and I am hoping to find among the various clinics

of Europe at least a few things that will help us a little. In our winter season here we endeavor to get ready for the summer's campaign. We have in about three months in summer about as many people as we have all the rest of the year, so we endeavor to get in just as good running order, to gather as much ammunition, get our artillery trained as well as we can, and get ready for another campaign. I m not going to wait till I get home. If I find anything good and new in Europe, I will send it back by wireless, cable, or by letter,--in some way I will get the information home just as quick as I can, and you none of you are going to suffer, because I am gone. I am glad to feel in taking this little trip to Europe,--I am glad to feel more at ease than ever in my life before in leaving home. I have always had some very serious troubles on hand I didn't know how in the world I was going to get through with unless Providence helped us through; but at the present time we seem to be less loaded and burdened with perplexing things than ever before. There are a good many things about this institution and its work and the conduct of it that do not appear on the surface. Anybody that has ever had anything to do with any large enterprise will understand that. There have been some very peculiar ones, that a kind Providence has helped us along with.

I suppose some of you saw the President when he was here today. He very kindly dropped in a moment and left his benediction upon us, and I am sorry we didn't have a chance to show him our very interesting patients. I could have introduced him to a good many very interesting people and interesting cases too, but his time was very limited; he only had six monutes, but took part of that time to come up here and take a peep inside. But he said if he ever felt the need of a rest, he would be glad to come here and stop awhile. There is one thing I feel ather proud of--that the President of the United States is a man that does not drink a drop, and he does not smoke. I think everybody ought to know that. I feel that he sets a good example, perhaps for the first time in the history of the country for a good many years--not the first time in its his-

tory, for Abraham Lincoln did not smoke and he did not drink. He said if he had a son who smoked and parted his hair in the middle, he would mall him to death with a squash; so I am sure he didn't smoke; and we have a President that sets a good example, and that is worth a good deal for the rising young people, and I hope you will all tell the boys that are coming up that the President Taft doesn't smoke, and he doesn't drink, and he certainly is a man that everybody delights to honor and everybody respects, however they might differ from him in some of their political views. (The President spoke very kindly of the institution; he has heard about it a good many times, he said, and he was very glad to have a peep inside.) His good friend, Gifford Pinchot is quite a disciple of Battle Creek Sanitarium methods. He was with us last winter. I hear from him rather frequently, and he is sticking to the text. He finds that the low protein diet is worth a great deal to him. When I joined the reeption committee to meet the President, I was very much encouraged in meeting a couple of my fellow townsmen I had not seen for some little time, and one of them said to me, "Doctor, how do you think I am looking." I said, "Fine, fine." He said, "You caught me on the cars a few years ago, and you caught me smoking; and you told me you would not perform an operation upon me for a thousand dollars. I asked you why, and you said because I was smoking, and you were sure my vitality was not able to sustain me through an operation, and you would not risk operating on me. That set me to thinking, and I dropped my cigars at once, and I have not smoked since, and I feel a whole lot better." I met another man, and he said, "Doctor, you met me at the Sanitarium one day, saw me smoking, and you said, "What makes you smoke?' and I said, "I like to smoke'. And you said, 'come in here.' And you took me into the office, found my blood pressure was 180, and you said it would go on up if I continued smoking. And I thought I better stop smoking, and I haven't smoked any since." He said, "I am coming up to have my blood pressure taken and see where it stands now." This man had wonderfully changed. His skin was clear; he has the complexion of a girl, and he was sallow, yellow, stained

with nicotine before. He looks really like a rejuvenated man. I tell you, my friends, if there is anything in this world that pays, it pays to be good to yourself, to be good to other people as well. Charity begins at home; goodness begins at home; be good to yourself. Obedience to the laws of Nature is the very first thing that a man ought to consider to be his duty. Our first duty in this world is to obey the laws of Nature. Suppose we undertook to violate some of these laws. A man looks out of the second-story window and sees something bright, and he says, "I thak I will go out and get that." He steps right out of the window. Somebody sees him coming and says, "Look out, gravitation will get hold of you and slap you against the pavement, and perhaps dash your brains out or break your neck or something," and the man says, "Oh, I defy the law of gravitation." Where will he end up? But there is another man here who is violating the laws of digestion. That man says, "Oh, I am going to get along all right." I want to say to you, my friends, that the laws of digestion are just as inexorable as the laws of proper heart action, as the laws which relate to hygiene, and the wellbeing of the liver, brain, nerves and all the rest of our bodily organs--those laws are just as absolute, just as fixed, just as certain, just as inexorable, and their infraction is just as certain to be followed by penalty, by punishment, not arbitrary punishmet, but simply a consequence as a violation of the law of gravitation, or of any other law. We must be law-abiding if we expect to live long and well in the earth.

Now, I promised to throwa a picture here upon the screen. We have got some moving pictures, and we will talk a little about them as we go along.

One thing furter I want to say,--that in going away I feel that I am leavingbehind the most thoroughly organized, most competent faculty in this institution that we have ever had, and they are entirely competent to carry on the work. If I never came back, I should feel that this work would go right on all right; so I do not feel any concernin going away. Here is a picture of some battle Creek Sanitarium methods. I want you to carry away with you an idea of how you can

apply these methods at home. I am rather proud to say that these moving pictures were made in our own photographic department. Here is Mr. Horace Fletcher who comes to see us once in a while. He is over in Bulgaria now studying the Bulgarians He started in about a dozen years ago an invalid who could not get life insurance, and by taking pains to thoroughly chew his food, he has thoroughly renewed himself, so that he is able to perform feats he performed when a boy, although he is 65 or 66 years of age. He is nimble, active, and can outdo most young men in feats of endurance. Mr. Fletcher does not chew everything by any means. He found when he chewed his food he was naturally led right along into the channel of healthful living. He found he didn't like to chew beefsteak after while, so dropped beefsteak. He found he could not chew cigars any more, and so dropped cigars. He then found he could not chew wine with much satisfaction, so he dropped wine; so he finds himself living practically upon a Sanitarium bill of fare. He is a low protein feeder, does not believe in eating meat. The last time I heard the question asked him, "Mr. Fletcher, what do you think of meat?" Mr. Fletcher said, "Meat is poison; beefsteak is poison." So you see his opinion of it; and now he can get all the life insurance he wants.

You don't have to have any machinery to apply the great principles of hydrotherapy at home. There is nothing in the world that relieves pain like hot water. All the linaments in the world do not compare with hot water. A spraind limb a lame back, lumbago, or sciatica, or pain in the side, pleurisy, sore throat, pain in the stomach of colic,--nothing in the world relieves pains of that sort like heat. Heat kills pain. Please remember hat. Heat kills pain. If you have gt a pain in the top of the head,--you can not apply a fomentation there always, but heat to the feet will often relieve that pain. I was taught hydrotherapy from my infancy up. My mother learned about hydrotherapy from some source, and she was a pretty good doctor herself, so she taught me the practical way in hydrotherapy, and I had an idea of it. I remember when I was a boy of fourteen years old, I woke up in the night one night with what boys call jumping toothache, and it

was something frightful. And I sprang out of bed. I didn't want to disturb my mother or anybody else in the house, and I hurried down to the kitchen--knew there was some hot water in the boiler at the back of the stove, so I got some hot water in the wooden tub, and I got into that tub as quick as I could, and my tooth was aching so frightfully I could hardly endure it; but within one minute's time after I got into the tub the pain was gone. It was simply a wonderful relief to me, and I was able to go back to bed, and slept soundly the balance of the night. Don't send for a doctor to give any hypodermic injection for pain. Don't swallow pills; don't give a baby paregoric; don't resort to the use of poisonous means which always leave a sting behind, always leave mischief behind. If the baby takes paregoric, the bowels get tied up. So with any sort of anodyne. If you take it, the bowels are paralyzed, then autointoxication comes, and biliousness, and the troubles are aggravated; so it is worth while to know that heat will--not always, but almost always cure pain; almost certainly give relief. Even that awful pain of gallstone colic which is the worst pain I know of in the world, is wonderfully relieved by the hot bath. (However, it is worth while to remember that the size of the application must be in proportion to the size of the pain. If you have got a pain as big as your hand it will need a fomentation at least a yard square. That is the reason why that patient has a hot hip and leg pack. The pain of pneumonia is wonderfully relieved by the hot hip and leg pack. Up in the surgical ward, after operations of all sorts upon the abdomen, the regulation remedy is the hip and leg pack, and it is wonderful how patients get along, and how little drugs are used in our ward.) Then there is the wet sheet rub. Here we are having a cold towel rub, the purpose of which is to bring the blood to the surface especially after a hot application of any sort. (After a hot application, the blood must be fixed in the skin by a very short cold application. That short cold application causes a reaction in the skin, and the blood circulation is greatly increased, and the blood is fixed in the skin; but when these cold applications are made day after day, the blood vessels of the skin become enlarged, the skin becomes more active, and so, as the blood remains in the skin in larger

volume , the excess of blood in the liver, stomach, brain and spinal cord is relieved. About twenty years ago one of my associates here, oe of our lady doctors, Dr. Lindsay, said to me, "I had a toothache last night, and I took down the lamp, put it against my face, and it relieved the pain." I said at once, "We will have to have an electric light bath, for the pain that was relieved was relieved not simply by the heat from the bath, but by the fact that the luminous rays passed deep into the skin, so it was so effective." So I had constructed a cabinet. The first one was not like this; it was horizontal, and afterwards we had it made in this shape which is a little more economical and convenient, xxxitxs and for the last fax twenty years we have been using the electric light bath, and its use is gradually extended all over theworld. It was on exhibition at the World's Fair at Chicago and there was seen by somebody who took the idea to Germany, and the German manufacturers have become very well off in manufacturing the electric light bath. The Emperor of Germany has an electric light bath in his palace, and he uses it. And King Edward had one in Windsor and one in Buckingham also. He was recommended to use it at Homburg, and it gave him so much relief that he had it put ito his own palace, and the king of Sweden also has the electric light bath, and numerous of the royal people of Europe have the electric light bath in their homes, and they make very good use of them. Queen Alexandra is said to have found great benfit frok the use of the electric light bath. The electric light bath can be installed in every home. The Good Health Company that makes these baths for the institution also make similar baths for home use, even portable baths are constructed. This institution is a sort of penal institution where people are punished for their sins against their bodies. The salt glow is a capital thing. After the salt glow the skin is left as smooth as marble, and the reason is it has the combined effect from the salt, the cold water, and the friction altogether. The salt has a chemical effect. The rubbing with particles of salt produces mechanical friction, and the cold water produces thermic reaction, so all these

things together combine to produce strong stimulation of the skin, and the skin is powerfully stimulated afterwards. These shower baths are made also by the Good Health Company and can be installedin your own homes if you wish. (This revulsive douche to the spine is first hot water then cold water, then again hot water; first warm water, the temperature should be about 105° to 110°, or even a little higher than that, and this causes reddening of the skin and a stimha-tion of the circulation; then comes the cold water, and the cold water causes the opposite reaction. It stimulates contraction of the blood vessels, and contraction which is quickly followed by reaction, so the blood is fixed in the skin. A fine reaction afterward is the thing that the bath is taken for; it is a fine reaction by which the blood is fixed in the skin and the spinal cord is stimulated. I remember some years ago a doctor came here who had been broken down, and was unable to work; came here, had the cold spinal douche to his spine every day for ten days, and he was on his feet again, and felt as well as ever. It is a wonderful means of stimulating the spinal cord.) (Very hot applications applied short are also stimulating, but long hot applications are depressing and prolonged cold applications are depressing.) (Hydrotherapy is one of the natural forces that has greater curative power than any other. I do not kow of any one curative agent that could be dispensed with with less loss, without greater loss than hydrotherapy. We can not get along without it. If we have water, we can let almost everything else go, because the water has such varied therapeutic effects. Water is stimulating, water is depressing; it will relieve pain, it will increase nerve sensibility; it will stimulate the function of any organ in the body, and it will depress the function of any organ in the body. A hot application over the liver will not only relax and dilate the vessels of the skin under the fomentation for example, but we find it will also dilate the vessels of the liver which is deeper in. Not that the heat goes in, but reflexly through nervous action, the vessels of the liver are made to relax. By a cold application immediately following the application of heat, the vessels of the liver are

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are made to contract, so the blood is pushed on. Then take another hot application, and the vessels dilate, and the blood goes in, and by a cold application the vessels contract, and the blood comes on out again, so there is a regular pumping process that can be set in operation to pump the blood through the liver. If you have got a torpid liver, hot and cold applications, the hot spray, the revulsive douche is a capital means of stimulating the liver into activity, and this can be repeated a thousand times without any deleterious effect. We might give a drug that you think stimulates the liver, but after while you have got a larger liver than before; it is larger, larger, larger, and by and by it won't act at all. But hydrotherapy acts differently. Every application brings the person nearer to the normal state, and the organ responds every time far more readily than the first time. By means of hydrotherapy we can increase the blood in an organ, or we can diminish it; we can increase the activity or diminish it, so we have control of all the vital functions in a way which no other remedy is capable of controlling them.

Q. What is the cause of the condition in which the saliva makes the lips sore?

A. The saliva always contains great numbers of bacteria. These bacteria are ordinarily not permitted to grow. When the saliva is in a healthy state, they do not grow. When the blood is in a low state, when the poisons are absorbed from the colon and circulated in the blood in large amount, then the saliva loses its power of suppressing the growth of germs, and they grow in great numbers; then they produce these sores in the mouth, about the lips and in other parts.

This moving picture is to give you a little idea of what has been done in the purification of water. You noice this water was selected from a pool. Water from pools lakes, ponds, or rivers is always unclean. It is never fit to use without filtration. Some people have the idea that water must contain these wild beasts in order to be living water. But living water means fresh water,

tunning water, pure water, clean water. But water that is alive in this sense is full of dead things. I have seen those creatures many times in examining water. This picture is perfectly familiar in our laboratory. We have spedimens of water sent in continually that contain just such things; so you see it is a matter of some consequence to know that the water is clean; but these living things are not the most dangerous elements of water. The dangerous elements are typhoid fever germs and things kk of that sort. When water is boiled in order to restore the natural flavor of the water, it should be put into a bottle, about half filled, then shaken with air; then the cork should be let out and some more air let in and the bttle shaken again until the water absorbs the air which naturally belongs to it. When you see water with these animals in it, it is ot so much the animals themselves you should be afraid of, but the poisonous, putrefying material upon which these creatures are feeding. What is called the beard of the oyster is completely covered over with these cilia, and they are continually working and pumping the germs into the oyster's mouth. If water is heated to 212°, the disease-producing germs are mostly killed; but to kill them all requires a temperature of 240 degrees for half an hour. So you see the putrefying germs found in meat are not so easily killed. Boiling or roasting does not kill them entirely. The most convenient way of aerating the water is to pass it through a charcoal filter. Distilled water is perfectly safe. The question is often asked, "Is it safe to drink distilled water?" Somebody published some time ago I thinkin the interests of the brewers, and saloons, that distilled water is dangerous, that it is deadly. They had learned thek fact in the laboratory that if a living cell is placed in pure, distilled water, the cell will absorb the water and will swell up and burst; so it is fatal to cells. Now what is true of distilled water id equally true of rdinary water; it is true of well water, any sort of water from the pipe. Well water is not distilled. It is necessary that the water should contain a little salt when it is brought in contact with living cellsof the interior of the body. The cells on the surface of the body, on

on the mucous membrane are able to withstand the contact with pure water, but the interior of the body contains cells which are of such a nature that they rqûre a certain amount of saline elements,

But now I see it is after nine o'clock. We have some more films we will give ~~us~~ you an opportunity to see next time. I just want to say one word further. Some of you are frightened becau se you see cold weather coming; but cold weather won't be here until the middle of November. I took a bicycle ride, I remember, some time ago, with my wife and children, of several miles in the country, on Christmas day, without gloves or overcoats, and we were entirely comfortable; in fact, we perspired considerably. We always have the grass green on the lawn here until the first of January, and often until the middle of January. We have some snow. If we have snow enough for sleighing, we are delighted. Once in a while we have snow enough so we have steady sleighing for two or three months, but we do not have zero weather or blizzards. We have cold weather enough to make our fingers and ears tingle if we go outdoors and breathe the cold, fresh air. We have just simply nice, pleasant summer temperature all the winter through inside. People who live in the North and go away from cold weather make a very great mistake. The tonic effects of cold weather are certainly advantageous, and we find that our sick people make more rapid progress in the winter time than they do in the summer time. We do not find cold weather is any hindrance to us, but a benefit. The time was when it was thought cold was a dangerous thing, and a person who had trouble with the lungs must go at once to a warm climate. A doctor in Colorado some time ago was talking about a tent colony he had, and I asked him how he got along in winter time. "Well," he said, "We don't see any evidence of improvement at all until the temperature gets down to forty below zero; then they begin to get better." Our temperature here is generally about twenty above zero. It occasionally drops down to ten for a day or two in the middle of the day; but the temperature is generally ten or twelve degrees below above ?
freezing. We are willing to have it a little colder than that. Above all, don't hide away in hot rooms and flee away from cold weather. I have known people to

barricade their houses when they saw cold weather coming, banking up around the house, and even stop up the keyhole with cotton for fear a little cold, pure, fresh air would get in. In winter time, the air is absolutely pure, free from germs, and every breath one takes is a little cold bath that gives him a lift. Personally I wear the same clothes I have on now all winter long. Last winter I wore the very same sort of clothes I am wearing now, the same shoes and clothing, made no change in my clothing at all except a suit of thicker underclothes, and I did not suffer a particle from the cold. I found myself in fact warm and comfortable the entire winter through. The important thing is to keep the blood clean and the circulation good, then the fires of the body will keep us warm, and the cold weather has the effect to stimulate these fires. I don't expect to meet you here in this way again, so I improve this opportunity to say good bye. I hope you will all stay here till you get well. Don't let anybody coax you off until you have gotten what you came for. Health is a thing that is worth striving for, that is worth working for, that is worth making a good investment for, for it is the most valuable thing you can possibly get. I will see many of you perhaps again before I leave. I expect to be leaving on Monday, and will not see you all together, so I will say Good bye.

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