

QUESTION BOX LECTURE

at the Sanitarium Parlor, Battle Creek, Mich., Monday, April 8, 1912, at 8 P. M.

by

J. H. Kellogg, M. D.

Lecture 50

Excuse me for keeping you waiting a few minutes. At eight o'clock I was just through with work in my office where I had been shut up working all day and I felt I was too dull and stupid to come here and appear before you without a little fresh air so I stopped a few minutes to step out doors to get a glass of Nature's Elixir. I filled my lungs five hundred times and I feel better. It was for your sake I did it rather than for my own. There is nothing that will make the eyes open and make the nerves thrill like pure oxygen, but if we lived in an atmosphere of pure oxygen, we would burn up in a very short time, would be very short-lived; probably would not live more than five or ten years at the most, we would burn up so fast. So this Elixir is diluted for us. We get it at about 20%.

It is diluted with about 80% of nitrogen and only about 20% oxygen. *We could not bear pure oxygen*

We could not bear it. Some people think they can not bear that much, so shut themselves up indoors where they can not get anything but contaminated and polluted oxygen. Now we are very careful to have the water we drink very clean and pure and take great pains to know that we have pure water. In our cities, how much pains is taken to see that the city water supply is pure, but how little attention is given to the air. In a great many cities in the country you will find the air polluted with the smoke of the chimneys, and that is not so bad, but there are a whole lot of festering sewers, gutters, cesspools and garbage boxes and the whole town is scattered over with infectious things that are constantly polluting the air and you see how some people shut themselves up indoors and breathe the same air over and over again. Think of it!

In India they have a way of manufacturing cholera that is splendid. If

you want to have cholera, it is the most effective method possible. In some parts they do not have a very good water supply, so they have hollow places dug out, perhaps in the center of the village, or close by, where water collects in the rainy season and this stagnant pool is their entire water supply of the village.) People go down to the pools and wash their clothes. They go down early in the morning, ^{and} take their bath. They allow sewage to go into the water and all the filth to accumulate in the water; yet they wash their clothes in the water and they ^{take} gather up their drinking water from the same place.) I do not think I am exaggerating for I have been told this is true in certain parts of India, and there are several people here who are willing to bear testimony that this is true. I have never been there myself, but I have heard about it. It seems beyond belief that people should do such a thing as that, doesn't it? Yet they will go down, wash their clothes in that dirty water, let the filth run into it, bathe their bodies in the water, take their morning baths and then take a bucket of water home and use it for their domestic purposes. (That is what they do in some parts of India, and the conditions are very ripe for cholera and other infectious diseases.)

Now, in this country, we do the same thing, only it is not water, it is air instead. We shut ourselves up in a tight room, perhaps a lot of people going to church and there is the preacher standing up there trying to infect those people with good ideas, splendid ideals, but see what the people are doing to themselves, or what the janitor is doing to them. They are shut in tight. Perhaps there is air enough there to last that congregation about five minutes and they are breathing that same air over and over again. Now I am going to make a little calculation here so as to show you the reality of that. (Every breath we breathe, we spoil three cubic feet of air, renders three cubic feet of air unfit to breathe again. We do not have to ventilate for the purpose of getting more

oxygen to breathe. That is not why we ventilate. We ventilate for the purpose of getting rid of the air we have polluted. That is the important thing. People need to understand that, ~~that the ventilation is to get rid of polluted air.~~ It is not to get a supply of oxygen but it is to get a supply of clean air. Every breath we breathe out pollutes three cubic feet of air.

Now when you see your hands are dirty and you wash your hands, how much water will those dirty hands pollute? Of course, it depends upon the character of the dirt, doesn't it? But here is a barrel full of water. As soon as somebody comes along and washes their hands in that barrel, you wouldn't want to drink any of that water. The whole barrel of water is polluted.

When air comes out through the lungs, two-thirds of the air that comes out from the lungs has been polluted by being spread over two thousand ^{square} feet of dirty surface. If a person took a bath in a barrel of water, you certainly wouldn't want to take a drink of that water. It is nauseating to contemplate, but there are only twenty square feet of surface of the body or twenty square feet of dirt if you please. Now in the lungs we have two thousand square feet, one hundred times as big a surface, and poisons are passing out from that surface continually into the air. So the air we breathe out at one single breath pollutes three cubic feet of air and renders that air unfit to breathe again.

Now take a room the size of this, forty by fifty feet. That would be two thousand square feet on the floor and fourteen feet high, which would be 28,000 cubic feet of air in this room. Let us see how long this would last and how many people we could get into this room. I suppose we have 250 people here now. Suppose this room is ^{has} crowded full, that there were 350 people here, or we will make it 400 ^{people in it} to be an intense example. Let us see how long this air will last those people.

Every breath pollutes three cubic feet of air, and breathing eighteen times a minute, we will call that fifty cubic feet a minute for every person, and there are four hundred people in the room, we will say, four hundred times fifty would be 20,000, so four hundred people would pollute 20,000 cubic feet of air in a minute. Not in an hour, but in one minute, so you see when four hundred people have been in this room and have been shut up a few minutes, the air is unfit to breathe. It is unfit to breathe in a minute and a half. The air that is in the room has been breathed by all the people here. There isn't any air in the room that has not been in somebody's lungs, so we can not take a single breath in such a room as that without taking some air that has been down in somebody's lungs and spread over two thousand square feet and picking up the dirt that has come from every ~~brook~~ ^{So} and corner of that person's anatomy. / you see it is an awfully dirty thing to do to sit down and breathe air that has been breathed over and over, that has been down into dyspeptic stomachs and has been passing over diseased nasal cavities, perhaps, and been polluted by contact with foul poisons that are generated in putrescible colons, that has been excreted through the lungs, breathing such air over and over again. I am glad to see you looking disgusted. That is what I want to see as a reaction to what I am saying because I don't want you ever to forget it, my friends. I want what I say to make an impression upon you and I hope it will so when you get home, you will see that there is something done to that old church ^h were you go to service on Sunday, to let some fresh air in, ^e Even if you have to knock a hole through the window.)

I have known that thing to be done, too, when the circumstances really demanded it.

About twenty-five years ago, I happened to be a member of the State Board of Health, as I am now, although I have not been continuously all that time, but I was sent one time by the Committee of the Board to

examine the public buildings of a neighboring town. I would just as soon tell you where it was. It was over here at Kalamazoo. As a matter of fact, we inspected all the public buildings in the state of Michigan, that is, all the leading ones, so I was quite busy those days on errands of that sort and I inspected the public buildings of Kalamazoo and I did not find a single public building over there where a person could get a decent breath of fresh air after they had been shut up in a room for five minutes. The public school buildings had a perfectly atrocious supply.)

The largest church in town ~~that~~ held two or three thousand people when it was filled, and it was a fine building, for they had a very popular preacher there; they had a place three feet long and one foot wide for letting in fresh air for all those people and I heard a remark that the choir boys of the Episcopal Church often fainted away and the preacher had a pretty hard time to get through with his sermon. They had a most ingenious arrangement for putting that parson to sleep—they had an arrangement for the outlet of the foul air right in front of the preacher's stand, within three feet of where he stood. There was a grating around the front of the pulpit and all the foul air had to go out through that grating so all the foul air was pulled right down there for the preacher to get the benefit of it. The whole congregation was pouring impurities into the air and the whole of it was concentrated on the preacher. That is one way in which people can lay their woes and burdens upon the preacher and he certainly had a pretty hard dose of it and the choir boys were a little behind the preacher and the thing was so bad for those boys that one or two of them fainted away every little while so you can see the condition that church was in.)

That is not an uncommon thing. Look into your own church when you get home and you will be likely to find a situation not very different. People ordinarily do not consider the rapidity with which the air is polluted. The filth is not in sight, you know, so we do not give it consideration, because

we can not see it. If our breaths were blue, so every breath sent out from the lungs was colored blue, and was visible, and that which was the most impure was the bluest, we would see a very horrifying spectacle. Try to imagine, if you can, anybody in their own room, or every person in a crowded room, pouring into the air blue fumes coming out of the mouth and out of the nose into the air. It would not be very long before the air would be so blue you could not see through it. I want to get this thing into your minds as a concrete thing, if I can, that these impurities of the air are not imaginary, but are real things, tangible things. We can find them in the microscope or with chemical reagents so we know they are there.

Nearly thirty years ago now I saw an experiment in Paris which was extremely interesting. There was a series of air tight jars, we will suppose that they are shut up tight. Here was a rabbit in each one of these tight jars. These little cages were made air tight, each one with a rabbit in it. The air was sucked through from ^{the} first rabbit with a pump to the second rabbit so the second rabbit had to breathe the air that had been ~~breathed~~ by the first rabbit and the third rabbit had to breathe air that had been breathed by the two previous rabbits and the last rabbit had to breathe the air that had been breathed by all the rabbits before. The first rabbit got along all right. That was kept there for six months. The second rabbit had been there only two or three weeks, because the rabbits in the second jar died off every three or four weeks and the last rabbit died off in only a few days so they had to put in a fresh rabbit very often. The first rabbit had been there six months, in the cage, since the beginning of the experiment. What was the difference? The difference was just this. Down here, there was placed a bottle and before the air went into that cage, it was passed down through this bottle and purified, passed through sulphuric acid and through lime and the air went through first one and then through the other so this rabbit was perfectly well and was breathing air that

had killed off the other rabbits before him.

Now all the air we are driving out of our lungs is laden with some of the worst poisons of the body so it needs to be carried away and fresh air put in its place. That is the reason why we feel so much better when we have been out and gotten a little fresh air. That is why pure air does us so much good. Why a walk does one so much good. Why, a man who has been shut up in a counting room, or office, or some other closed place, finds himself with a thick head and confesses that his ^{energies} ~~nerves~~ are being debilitated and his efficiencies are lacking and *he is glad to get a little fresh air.* ?

to get out. Now our houses should be supplied with air that is just as good as can be found on the face of the earth. There isn't any reason in the world why we should not have just as good air indoors as outdoors. Consumption is a house disease. Some of you have gotten into the habit of living in holes. A way back in the ages somewhere, in the ice age, I suppose, when the great glaciers were rolling down from the pole, our ancestors in old Europe found the weather so cold that they had to move into holes in the ground. The most of them went off south but some of them lagged behind and were driven into the holes in the ground. They were practically cave dwellers.

I have in my office the model of a jaw of one of those men, the so-called "Heidelberg" jaw, the oldest human relic of that sort that has been discovered. It is a very interesting jaw, by the way, nearly twice as big as the modern jaw, which shows that the men who lived in those days were powerful, stronger, more sturdy men than those who live now. Well, those men moved into caves to get away from the cold and the strangest thing is we have never gotten out of the hole. We are still down there in the cave. We have extended the cave up above the ground and put a roof over it and we have gotten so used to living in caves that we simply dig holes in the ground and put roofs over them. Now we have extended the idea. We have put up one story after another above the

hole in the ground, but it is nothing but an extension of the hole. You see, we do not live in the open, fresh air and sunshine as our primitive ancestors did, but we still live in that old cave that our prehistoric ancestors were driven into during the glacial period.

We have not gotten rid of it yet. There is not the least bit of sense in it. There is no reason in the world why you should live in this indoor fashion, shut up, breathing bad air and polluted air. There is absolutely no reason for it.) If you want proof of it, just look at what Pe^ary did. (Pe^ary went away off into the Arctic region and with nothing but a sleeping bag and a canvas tent. He traveled clear to the pole and for months and months he was out of sight of any kind of a house in the coldest part of the world. See what Shackleton did and what Amundsen has ~~nearly~~ done and what Scott did and these other explorers. I won't mention Cook for nobody knows what he did, but men we know have gone to these extreme limits of the earth where the temperature goes down sometimes to 70° below zero, and were able to live right out of doors just exactly as the grizzly bears do and the Arctic fox. They live right out doors. When it came time to go to bed at night, they simply climbed into the sleeping bag, covered themselves up with a blanket of snow to protect themselves from the cold and they would go off to sleep and sleep soundly until morning. We do not have to be shut up between four walls. We can live in the open and survive.

Some of us have become so sophisticated that we almost seem scared to death of having to lie down and sleep out of doors. To sleep on an open plain would be deadly. Surely, many people suppose, we would be struck by something before morning and be certain to die.

But we must somehow get rid of this fear of the out-of-doors, fear of the open sky and of the fresh air and of the cold air.) I think we have cast that fear off up at our house. At least, Mrs. Kellogg is thoroughly emancipated. I do not think she has slept indoors in six years. Possibly

she may have once or twice on some special occasion when the out door sleeping arrangements had gotten deranged by winds, or something, but it is a most extraordinary thing for any member of my family to sleep indoors. I have to stay indoors with the telephone. I have three telephones right by my bed and I am talking about sick folks all night long, so I have to stay by the telephone, but I have the windows open all around me and I find two or three inches of snow on my bed very often when I wake up in cold weather and every now and then I have to break the icicles off my moustache, so I have a good dose of cold air as well as the rest of the people.

We must somehow get rid of this dread of fresh air and get a liking for the pure, sweet, fresh air that Heaven gives us, which is the real Elixir of Life.

So much for fresh air. Now let us get into these miscellaneous questions.

Q.—Please tell me if a *person* with too much acid^{ity} of the stomach should drink warm water or cold water.

A.—Persons suffering from hyperacidity, if they desire to drink with special reference to the stomach, should take hot water half an hour before the meal, ^a half a glass of hot water, and then about two or three hours after a meal, they may drink water of the ordinary temperature, neither hot nor cold. It would do no harm for them to drink moderately warm water, but it should not be very hot. A person suffering from hyperacidity should avoid eating hot foods. He should not eat very hot food and should not take hot drinks at meals because the immediate effect of the heat is stimulating, but if you take hot water half an hour before the meal, it has a stimulant effect at first and that is followed by a reaction and that reaction is the opposite. If you take hot water long enough before the meal so as to get this reaction from heat, it leaves the stomach in a condition in which it makes less acid than it ordinarily does so the thing is to take hot water.

A person with hypopepsia should take cold water fifteen or twenty minutes before a meal, a small amount, one-third of a glass, perhaps. This will be followed by reaction in the opposite direction so that the stomach will be made more active and will be aided in making a larger amount of gastric juice. The condition will be improved, in other words.

Q.--What treatment do you recommend to break up a cold in its first stages?

A.--A treatment of a cold must depend upon the way in which you catch the cold to some degree. If you begin right in the beginning of the cold, commence right where the cold began.

scores of times and hundreds of times with most excellent results. Then
go to bed.

the diminished peristaltic action will naturally result in stasis in intestinal inactivity so/^{you}want to eat something to furnish bulk. I don't know of anything better than the simple thing that we recommend here, Japanese seaweed or ising glass, as it is sometimes called, or gelatine, or agaragar. It is put up in packages here under the name of Colax. That is our name for it. That means agaragar, put up in little squares, measured out in just the right proportion for the ordinary dose. Para-Lax is another thing and that is an emulsion of refined paraffin oil. That is a very fine thing, too, for this purpose. Do not take a lot of laxatives, pills, or things of that sort and yet, if you have nothing else available, it would be a great deal better to take some sort of laxative mineral waters or to take seltzer or Seidlitz powders or anything of that sort. Almost anything is better than to allow the bowels to be inactive. The bowels should move two or three times a day and if you are not taking ordinary food, you must take something to keep up the process.)

(I might remark that whenever you find you are obliged to miss a meal, take something. If you haven't time to eat a meal, take something so as to keep up the peristaltic rythm. A German physiologist who has been recently writing on the subject of bowel activity says bowel action is the movement of a pendulum and if you stop the pendulum the whole thing stops. If you get the pendulum to going again, it will keep on going. It is a sort of rythm the body establishes which can be easily interrupted by inattention.)

Q.--In the 14th Chapter of Deuteronomy, we read God gave the following command: "These are the beasts which ye shall eat, the ox, the sheep, the goat, the hart, the roebuck, et^c."

A.--I see somebody has put in another poser for me. They are trying to catch me on theology. I do not pretend to be a theologian at all.

The and so forth. There isn't any more said about that. If you read on further, you would have found among the other things the grasshopper.

The grasshopper is there, too. That is the "and so forth". Passages are found in other parts of the Scripture. There ^{was} John the Baptist, who ate locusts and wild honey.

The question is, how do I reconcile this with our theory of not eating meat. I am requested to answer specifically. Now, which shall I answer specifically about, the ox, the sheep, the goat, the hart, the roebuck or the grasshopper? Now I will answer specifically that if this command applies to any of these creatures, it applies to them all, the grasshopper with the rest and if it is to be taken in the sense of a command, that these things must be eaten, it must include them all.

But I have a very conspicuous example, in Holy Writ, which I think gives me license to take an independent attitude in relation to meat. You know Peter had a vision once. He went up on a housetop about midday and he fell asleep and he said it was along about dinner time and he supposed he got hungry, for he had a vision of something to eat and he saw a sheet let down out of Heaven and in that sheet he saw all manner of beasts, four-footed beasts, and creeping things of all sorts. I suppose that means grasshoppers, cockroaches, and all the rest of the bugs, and the Lord said to Peter, "Arise, Peter, slay and eat". It is another command, don't you see, and the question is often put to me, "What are you going to do about that?" and I always make this answer and I am very glad to be able to make it. I say "What did Peter do?" Now, whatever Peter did was good enough for me to do. Peter said "Not so, Lord" and the Lord took the sheet back to Heaven again and Peter didn't have to eat those things, so don't you see we are excused?

Q.--What is indigestion?

A.--Now that depends upon the thing that has been eaten. Some things produce indigestion in the stomach and some things produce indigestion in the intestine. It depends on the character of the food, you see. Some things people eat do not produce indigestion until some time afterwards.

Now for instance, a boy climbs up a cherry tree and he gets his stomach full of cherries or a little more than full and he goes home and has an awful attack of indigestion in the night, terrible pain and colic and the mother gets up and applies fomentations on the front side of his body and something hotter on the back of his body, perhaps. At any rate, he gets counter irritation on both sides and he feels better. The pain is relieved. The next morning he is ready to climb another cherry tree and to do the same thing and he is able to do it. It doesn't make him awfully sick, doesn't give him a fever, simply pain and uneasiness and he gets over it very quickly. That is indigestion in the stomach.

Now, here, perhaps, is the father invited out to Thanksgiving dinner and he eats two or three times as much turkey as he is able to digest and in consequence some of that dead turkey lies around and rots, not in his stomach, but in his colon and a day or two afterwards he begins to feel awfully bilious has a bad taste in his mouth, he loses his appetite, has a headache. He doesn't want any breakfast and he is awfully cross and ugly and he goes to the doctor and says "Doctor, I want something for my liver" He lays it all to the liver. He never thinks a thing about that dead turkey lying around rotting in his colon. He doesn't know anything about it. He hasn't been to the Battle Creek Sanitarium and gotten informed, you see, so the doctor gives him a dose of calomel or something of that sort and the dose of calomel unloads the dead turkey and then he feels better. Now that is indigestion in another place, you see. That is indigestion in the colon. That is a more common form of indigestion and it is generally overlooked and attributed to the wrong thing and the man never thinks at all of charging this difficulty to the dinner, never thinks of the dinner as being in any way to blame for his biliousness. He thinks it is his liver. (How many of you have complained to your doctor about your liver? You ought to be ashamed of complaining of that faithful old servant, the liver. There isn't another organ in the body that does

so much, works so hard, that is so persistent in its efforts to save our lives and upon which we are more dependent than the liver.

Why, a man gets an attack of typhoid fever. It would kill him sure if it wasn't for his liver. His liver is carefully straining all the blood that has become infected with those typhoid fever germs down there in the intestine; the blood/^{all} goes to the liver and the liver strains every drop of it and takes all of those typhoid fever germs out that it can and sends them down through the gall bladder and some of them stick there and make gall stones afterwards, once in a while.

The first cigar a man smokes would kill him sure if it wasn't for the liver. Perhaps it is unfortunate that the liver has been so active in that respect for if the first boy that ever smoked cigars had been killed by it, we wouldn't have had so many boys smoking cigars, we wouldn't have any cigarettes. The whole business would have been prevented. But the liver is working for us all the while and whenever you have a bilious attack, you must not think your liver is out of order, you must not think your liver is lazy or that it is inefficient. It means simply that your liver is enormously overworked. That it simply is overwhelmed with a great flood of toxins that are being thrust upon it from the decompositions going on in the colon, so that the thing to do is to take care of the colon. When the doctor gives you a dose of calomel, it helps you, you are relieved of the biliousness and that biliousness is simply auto-intoxication.)

While I was a medical student, there was a great puzzle among the doctors and a great amount of discussion about the use of calomel. Old Dr. Bennett in Edinburgh one hundred years ago had made experiments with calomel on some dogs. He took some dogs, got hold of the bile duct of the liver and brought it out through the skin so the bile was discharged and he collected the bile so he knew how much bile the dogs produced in twenty-four hours. Then he gave these dogs calomel and found there was less bile every time than there was before

Bennett
 so Dr. Bern proved that calumel did not stimulate the liver and the *newer*
 doctors who were just coming on the scene were following
 Bennett, and in the college where I was attending,

~~The Professor of Materia Medica told us about~~ *all about Calomel*
 told us that calumel did not stimulate the liver and we must find some
 other means to do it. But the old doctor of practice recommended
 calumel for all these conditions I have been telling you about as being
 a most excellent thing to unload the liver. When the liver was torpid
 or engorged, you must give calumel to unload the portal circulation,
 as he said, so there was always a great quarrel and we used to have a
 good deal of sport sometimes in sending down notes to the old doctor
 and asking the doctor about Bennett's experiment with the dogs and
 the effects of calumel on the liver, and the doctor would come in in a
 rage. He would say he was going to keep on giving calumel in spite of
 Bennett's *experiments* and all the dogs in Edinburgh; so, as I said, there used
 to be a quarrel about it. But now everybody knows (that calumel has
 nothing at all to do with the liver, so far as the liver is concerned,
 except that it lessens its activity. But what it does is to unload the
 colon. It is the colon that is unloaded, not the portal circulation.

It is the strangest thing in the world that it takes us so long
 to find out that these mischiefs originate in the mass of festering,
 putrefactive material lying about in the colon, and that is where the
 trouble is. So you see, these different forms of indigestion must be
 differently interpreted.

(When the boy swallows the cherries, gets more of them than he can
 dispose of, they are fermented, swell up, make gas, in his stomach,
 and he has colic,) but when a man eats a big piece of beefsteak and it
 lies about and decays in the intestine, he has autointoxication; it may

get severe and his resistance reduced so low that he may get an attack of pneumonia and may not get over it at all. I know a ^{man} boy that was killed by a big turkey dinner. He ate as much as he ought to have eaten and then was tempted to eat more because it was so nice. He did. He took a second helping, had twice as much as he should have eaten. The next day he was taken down with pneumonia and died, a strong, sturdy man. There was no question at all that the turkey killed him. I thought so, at least.

Q.--What did you eat for your breakfast this morning?

A.--I did not have any breakfast this morning. That is the way I usually get treated. As a matter of fact, I get so busy I do not have time to eat breakfast so I gave it up years ago. I take a little fruit sometimes for breakfast and a cake of Colax. We must have some bulk. I like to have my brain clear and steady for hard work and I find it a great deal better to take in the morning a little fruit or fruit juice, or a little broth and a cake of Colax or something of that sort. Some simple thing, perhaps a few leaves of lettuce; just simply something to start the stomach's action and give the alimentary canal an excuse for maintaining its natural rythm. ?

Q.--What food would you advise for a person whose stomach does not digest starchy foods well?

A.--I have not found that person. I have been looking for thirty-five years for a person who is suffering from inability to digest starch in the stomach and I have not yet found one. We began about twenty years ago examining the saliva. Many of you have had a test meal and have had the saliva test. You were asked to chew a little paraffin, and the saliva was tested and I have yet to find a person whodid not have active saliva. There was no such case. There is no condition of ^{or} disease in which the saliva is not active and able to digest starch and

convert it into sugar.

Now there are cases in which there is a great deal of acid produced from the stomach and when such a person eats starch, as most people do, more or less, the acid interferes with the digestion of that starch to some degree, but if the starch has been thoroughly chewed so it is reduced to a pulp in the mouth, it will pass out into the intestine and undergo digestion in the small intestine. As a matter of fact, starch is mostly digested in the small intestine, any way, so we are not dependent on starch digesting in the stomach and those who are suffering from acidity in the stomach so no starch will digest, are not suffering at all from starch indigestion. That is not the cause of their trouble. The gas that is in the stomach is not due to fermentation of the starch. We have proven that again and again, but instead of being due to fermentation of the starch, these gases are due simply to the production of too much gastric juice and the starch only does harm, if it does any harm at all, in the fact that it produces too much gastric juice.

Now strange as it may appear, the dextrine and sugar that are formed by the action of saliva on starch are most powerful stimulants to the stomach and cause the stomach to produce pepsin and hydrochloric acid, that cause the stomach to produce gastric juice and the gastric juice which is produced in too large quantities. The only thing anyone has to do who thinks his stomach can not digest starch is to take before the meal or at the beginning of the meal a tablespoonful of olive oil or take with the starchy food at the meal a little extra quantity of butter, and be careful to have clean butter, and that is one of the difficult things to get, is clean butter. Ordinary butter is one of the dirtiest things that comes upon the table. There is only one thing that is more dirty and that is beefsteak, meats of various kinds. Meats of all sorts are a little worse than butter because they are farther advanced in putrefaction. I am

telling you this because meat has always been looked upon as the ^{nam} ~~sum~~ bonum of food, especially when one needed to get the great strength and energy from his food, but that is the greatest possible mistake, my friends. The cereals, the grains, the fruits and the nuts are the things that have a great amount of energy in them.

You would not undertake to fat ^{ten} an ox or to work an ox that was eating beefsteak. The ox ~~eats~~ corn, the horse ~~eats~~ corn. You would not undertake to make a horse pull a great load when feeding him on beefsteak. He would collapse in a short time and men that are properly trained have the very same experience.)

An eminent German physician who spent some time in Tokio thirty or forty years ago gave an account of how he once took a trip away out in the country and ^{was} carried by four coolies and he was a very stout man, very fleshy. He had several days' journey to go. He was accustomed to beef steak and he was afraid his men would collapse. He had two more men running behind to change off with the other men so he had six men to carry him and he was afraid these men would collapse before he got to the end of his journey so after the first day or two out, he insisted that they should eat some meat and very reluctantly they ate some meat and after one or two days they reported to him that they would not eat any more meat, ^{but} for if they had ~~more~~ meat, they would not be able to complete the journey. They found they were ~~so~~ unable to do their work on the meat diet, and they had to return to their diet of rice and vegetables; and a similar experience was told me by one of the few men who reached the Klondike in Alaska, one of the first dozen men who got there, with his partner, over the ice pass that many of them tried to cross. They started on the old trail. There were three trails or roads to the Klondike. One was around by the river, one was overland, but there was a shorter road that had been used by the surveyors in the summer time, but nobody had ever come over it in the winter time.

It was believed to be impassible. Some twenty thousand people started over this trail, but only eight or ten of them all got through. Nearly all of them went back. Some of them died.

They started out with a good supply of beefsteak, canned beef and canned meats of various sorts, but by and by the meats were all gone and they had nothing left but beans, so they cooked beans up in the morning, stewed them very thoroughly in the morning and let them cook all day and at night they would have the beans for supper and some left over for breakfast. They they would put the kettle on again and leave it cooking while they went back and pulled up *their sleds*. They went up in stages of three or four miles at a time and they had ~~to keep the~~ *seven loads* that they pulled up and had *ten* to travel that road all over *four* times so you see it was quite a journey and they had to spend ~~the~~ *slid* day in pulling their ~~sleds~~ up and they could go only three or four miles a day. Then they would have to make the camp, a new camp each day.

When he told me this he said "We got tired of those beans and we said, 'Well, now, by and by we will get up into the moose region and then we will have some of those find fat moose and we will have a fine time'". After a while they got to the moose region, shot ~~the~~ *a* moose, and he said "We had just the biggest steaks. My, how good they did taste." "Why", he said, "The steaks were as big as that (illustrating) and an inch thick". He said they had one of those steaks every morning for breakfast and he said "We were surprised in two or three days, to find we could not stand the work. We would get so tired after three or four hours we would have to have another steak and found we could not work on the steak, so we had to go back to our beans". After a few days' experience, they went back to beans and finished up their journey on beans and got to the end of their journey in the finest kind of shape. He said "We never had such good health in our lives as when we got to the end of that journey," "But", he said, "We stopped at the hotel and went to eating beef steak, etc., and in the course of a week, we were all sick and it was just the same with the rest of them." This gentleman

was over in the corner of ^{the} a room when I was making some remarks similar to what I have been making now and he voluntarily rose up in the audience and gave testimony as I am giving it to you. I have no doubt he told the truth; so as a matter of fact, it is really true that the thing that sustains the body is not protein, such as we find in meat and eggs, but it is what we find in grains, in cereals, in nuts, in fruits and in the fresh vegetables. These are the things that are best adapted to the human constitution and the things that are best adapted to support life and strength.

Q.--Please tell us why the potato and other delicious soups are made of water instead of milk, as formerly.

A.--I do not know that my attention had been called to this before, but I made an appeal to the cooks recently that they would give us less milk in the soups because we have so many people who can not digest animal protein, who want to get rid of the horrible germs that are making mischief in the intestine. Now it has been shown that there are a few groups of germs that are very deadly, through the poisons which they produce, and all sorts of efforts are made to combat these germs. They are proposing, by and by, to vaccinate people against these ugly germs, but this won't last because the immunity that is produced will only last a very short time. Then they will be just as rabid as ever. The only thing to do is to starve them out and these disease producing germs grow more rapidly on meat.

I had a letter from Professor Tissier of the Pasteur Institute just about two weeks ago, who is the associate of Metchnikoff of the Pasteur Institute and is consulting bacteriologist to this institution.--I wrote him and asked him to tell me what is the best way to help people get rid of these disease producing germs in the quickest way, and he writes me back "Cut off all the animal protein". He said "It is absolutely impossible to get rid of these putrefactive germs as long as the person is eating animal protein, milk eggs, or meat". He made another statement to me that in the course of

two or three months there will appear in the annals of the Pasteur Institute, in their bulletin, an article giving the results of extensive experiments which have been made which demonstrate that animal protein is twice as putrescible as vegetable protein and that is the reason why more soups are being made without milk.

In this institution, we are trying to keep pace with the most advanced line of discovery in everything that relates to the preserving of health and the restoration of health and every new scientific discovery, every bacteriological discovery that is made that has any bearing on our work here, we endeavor to get right hold of at once. Every single mail brings me reports from the great centers of Europe. Every month there comes in a large pile of publications and, working in my office, I haven't time to get through all these things, the French and German literature particularly, which are extremely abundant, so I have people in my house, in my library who just do nothing but sit and read these papers, looking for the things I give them a memorandum of ^{or} that I want to help me out and I can read the things after they have been culled, and when I go home at night, I find my bed covered over with things I must look at and when I have to take a ride anywhere on the cars, I put a whole lot of them into my bag so we are just digging all the while.

I have a young man waiting for me to get through now and when I get through here, he will go with me up to my house and we shall be working there until one or two o'clock in the morning trying to catch up to a lot of important things that are to be done.

I am telling you just exactly what I am doing and I would like any of you, who would like to do so, to take a trip out to my house and my librarian will show you into my work shop, a room all filled with drawers and pigeon holes and each one labelled with the subject of the papers that are there, and we have a great big subject index and everything is indexed and I have a whole room, which is an indexrerum, as we call it, in which everything that can be of any possible help to you here, is being noted down.

I am telling you this because I don't want anybody to get the idea that we have a fad here at Battle Creek or a dietetic creed or anything of the sort. I am willing to change my creed or my beliefs of any sort that I entertain, when anybody can show me a good reason for it, and we are watching constantly for any advance in scientific discovery.

I have made a very radical change in some of my teachings. If you should get hold of some of the books I wrote twenty-five or thirty years ago, or forty years ago, you would find I wrote some pretty foolish things and one of the foolish things that I remember very well writing was that coarse vegetables were not worth eating, because, I said, we did not have time to eat them. They were rubbish. I had only very little time to eat and I wanted to eat well what I ate so I thought I could not bother to eat those things and I suffered seriously in consequence. I foolishly went on in that course until I found some little nodules coming on my little fingers. I am confessing to you because I want to give you absolute proof of what I am saying, so there won't be any chance for any great doubt in your mind.

My father had a crooked little finger and I inherited from him a predisposition to rheumatism and in consequence of this very error I am telling you about, and because I did not know what I do now, about these animal proteins, because I ate milk and eggs very freely, I found myself laid up forty years ago with an attack of rheumatic fever and I was in rather a critical state for some weeks and my heart was so badly affected that it was months and months before I could walk even a short distance without getting out of breath, so I got a bicycle and I practiced ^{on it} and I was the first bicycle rider in Battle Creek, nearly forty years ago now. I brought the first bicycle to the city and the first time I took a little short ride just around the circle in front here, my heart beat so rapidly it was 170 and it was five or six hours before my heart got quieted from that little exercise so you see what a miserable state I was in. I walked down town one day and had to be

brought back in a carriage. I could not walk down to the end of the hall without being out of breath. I went to work and gradually trained myself up so I could ride a bicycle fifteen miles an hour. I used to have my wife take a horse and carriage and go out into the country and drive the horse as fast as it could go and I would keep right up with them. So I drilled myself and trained myself for several years until I got back my heart capacity again, and then the thing was to get rid of the ^{at} horrible fiend, rheumatism. I saw it had fastened itself upon me and I have had a battle from that time until now. I am not suffering from rheumatism this minute, but I know perfectly well if I should omit to obey the very principles I am telling you about, I know this fiend would be upon me because sometimes I do get a stiff neck, so I can hardly twist my head, or I get a stiff shoulder so I can hardly lift my arm, so I have to do the things I prescribe. I have to take my own medicine and when I do things I tell you to do, and stick to it, I find myself steadily going along.)

I am going to make another confession to you. If you will look sharp at my hand, you will see a little pucker in it there. That is a little blemish I am very much ashamed of. About two or three years ago when I had been very much overworked and had been neglecting myself in various ways, I found that little pucker coming there and pretty soon my finger was drawn way out here like that. Then I saw it was coming on the other hand and I stopped it because that is symmetrical contraction and I saw the thing was laying hold of me and the next thing I expected was it would attack the side of my neck and pull my head about; so I found I must give this thing a little more attention, go a little deeper into it; so I have had occasion, as you see, to make a very careful study of these questions I am talking to you about for my own sake and I have found great help and benefit. In fact, I have been delivered from this awful thing which I found was threatening me and have fought it off for twenty years and I am better off today than I was twenty years ago; so I hope to keep

in place for some time yet.

But I have not told you about this pucker yet. It is almost gone. I have been taking radium for the last three months. It is entirely gone from this hand and from that hand it is so nearly gone that when I showed it to my colleague, he was simply amazed when he looked at this pucker to find that that ugly contraction had disappeared. I have never known of anything before, except a remedy known as fibrolysin, and radium that would do that thing. We have always had to cut it off before, and afterwards it was very likely to come back as bad as, or worse than before, but I find to my delight my hand is completely restored and in the course of a few days more I expect the pucker will be gone and I shall be very glad, indeed.

Now, don't tell anybody that Dr. Kellogg is an old rheumatic because I am not. I simply have a miserable rheumatic heredity that I have to fight. It is a handicap I have to fight, but I am able to fight it. I know what to do to keep it at bay because I have succeeded in doing it. I have fought it off, but it is only by doing precisely what I tell you to do and what I advise you to do. It is only by doing those things that I am able to hold the thing at bay. If I should eat what you ate before you came here, if I should sit down and eat beefsteak, if I should even eat eggs freely and follow the ordinary diet, or go back to the old regime I followed twenty years ago, which I thought was all right at that time, I would be a helpless, rheumatic invalid in less than six months or a year, I am very positive, and I have got to live the rest of my life hovering along the brink, but perhaps it will be a good thing to keep me in line.

Q.--Dr. Hutchinson says that the best treatment for auto-intoxication is an exclusive diet of milk, which reduces to the minimum the quantity of poisons produced. Do you agree with him in this statement?

A.--I am glad to see Dr. Hutchinson has gotten so far along. Dr. Hutchinson recommended a few years ago that the only salvation of the human race was to eat

beefsteak and beefsteak was the one great thing we were all greatly in need of and he took it upon himself to make some sport of Dr. Kellogg and Battle Creek ideas in some of his articles because we recommended people to eat other things besides meat. But he has now discovered that milk is better than meat and he is perfectly right about it, because milk has less protein in it than meat has. It has a considerable amount of sugar in it and the sugar of milk is the thing that protects the person from autointoxication on a milk diet, but it isn't everybody that is protected by the sugar of milk.

Sugar of milk *feeds the friendly organisms.*

Some people can not use milk for the reason that milk forms hard, indigestible curds that remain in the intestine after the sugar has been absorbed. Then this protein ^{is} lays in the colon, undigested, after the sugar of milk has been absorbed, and undergoes putrefaction and does the same harm that meat does, although it is not quite so likely to do harm for the reason that it does not have germs already at work in it. Milk is not a panacea for autointoxication. There are certain cases that can take it with immunity when healthy but if there is an infection in the intestine, it is necessary to discard milk, eggs and meat and all animal protein as Professor Tissier ~~has~~ proved some six years ago, and he has been practicing this method now for some six years and he has treated between four and five thousand people successfully after other measures had failed, by cutting off all the animal protein of every description. Some of you are trying it and you know it is doing you good.

Dr. Hutchinson is beginning to see the light a little and I am very glad because he was in awful darkness on this subject of diet. Some of the things he has written have done a great deal of mischief.

Let me illustrate to you ^{by} just ~~but~~ one little fragment ~~of~~ how dense was the ignorance of this man on the subject of diet. Dr. Hutchinson maintained that meat is the natural diet of man and he proved it by his alimentary canal. "No", he said, (which is perfectly true) "Animals that eat

flesh have a short alimentary canal. The lion has an alimentary canal about four times the length of its body, so the lion is a carnivorous animal, while the sheep has an alimentary canal thirty times the length of its body, and the monkey has an alimentary canal about ten or twelve times the length of his body."

"Now, if you can find out how long a man's alimentary canal is in relation to his body, we shall know what his diet ought to be, naturally." All right. Now, the human alimentary canal is thirty feet long and the man himself is six feet so thirty divided by six is five, so that shows that man is a carnivorous animal, doesn't it? The pig has an alimentary canal four to six times the length of his body and that is proof that he is a carnivorous animal; so Dr. Hutchinson proves that man is a carnivorous animal because his alimentary canal is five times as long as he is, whereas a monkey's alimentary canal is ten times as long as the monkey is.

But you know, Dr. Hutchinson made a very great mistake in this article. *gammert*

We have here a sheep. Now when Dr. Hutchinson measured the sheep, he measured it from the nose to the end of its backbone and the sheep was three feet long and his intestine was ninety feet long so the sheep's intestine was thirty times as long as the sheep. He measured the lion and from the end of its nose to the end of its backbone the lion was four feet long and his intestine was sixteen feet long, so the lion's body was one-fourth as long as its intestine. Now then, when he measured the man, he measured him from the top of his head down the length of his backbone and then included the hind legs, don't you see, so he makes man just twice as long as he ought to be. But now when you cut the man's length in two or put man on all fours like the monkey or the sheep and measure him from the end of his nose to the end of his backbone, you find man is three feet long instead of six feet long, measured biologically, so

we divide thirty by three and it is ten, you see, so man stands right
along beside the monkey when it comes to diet, (Applause) and Dr.
Hutchinson is down on all fours with the dogs.

But I must let you go. I see it is bed time, and wish you all
a good night's sleep.

jhk/v-s/5-14-12.

D I G E S T I O N.

Steno-typicon Lecture at the Sanitarium Parlor, Battle Creek, Mich., Thurs.
April 11, 1912, at 8 P.M.

by

J.H. Kellogg, M. D.

I am going to talk a little while tonight about digestion. The matter of digestion is, after all, very simple. There are five principal organs of digestion, the mouth, the stomach, the liver, the pancreas and the intestines, and there are five digestive fluids, the saliva, the gastric juice, the bile, the pancreatic juice and the intestinal juice. Now the saliva digests starch. That is the work of the saliva. It converts it into sugar. The gastric juice digests protein. Starches and fats are not digested in the stomach, but only protein. The bile digests fats. Bile is an alkaline substance that changes fat into ^{a form of} soap, which is readily utilized by the body. I remember when I was a boy, we used to make lye by pouring water on the ashes in the old leach barrel out behind the barn. It used to be my duty to carry a pail of water out there and pour into that ash barrel every day. Then occasionally the lye was put into a kettle with all the odds and ends of fats that had been gathered up and the lye was poured into it, and it was all stewed up together and that made soft soap, so you see the liver is a leach barrel which gives out certain alkaline substances and when the bile is mixed with the food in the intestine, it converts the fatty portion of the food into an emulsion or a creamy sort of liquid. You can not wash fat off easily but you can wash off the emulsion because the emulsion will mix with the water. The fat is broken up into minute little drops and water floats them away so you can get your hands clean with soap. If you washed your hands in bile, you could get them clean just the same.

Bile is sometimes used to take out grease spots. It will emulsify the fat.

Then there are three great food elements, starch, albumin and fat and they are digested by the three great digestive fluids, saliva, gastric juice and bile. Next in order is the pancreatic juice. What does it do? You know pancreatic juice is a sort of "Board of Review". It doesn't do anything new at all. The pancreatic juice does just what the saliva does, and does it better. It does just what the gastric juice does and does it a little better, and it does just what the bile does and does it a great deal better, so the most wonderful of all the digestive fluids is the pancreatic juice. It is the most abundant of all the fluids, it is the most active of all the fluids, it is the most essential and important for it does everything that all the other fluids do. That is very interesting, isn't it?

The saliva converts starch into sugar. The pancreatic juice converts starch into sugar as the saliva does, and converts albumin into peptone as gastric juice does, and emulsifies fat and converts it into soap just as the bile does. That is what it does, and that is enough.

Now what is the last digestive juice? We have spoken of saliva, gastric juice, bile and pancreatic juice. Now what is left? The intestinal juice. This does one thing that no other juice does. It digests cane sugar. Cane sugar digestion, you see, is the very last end of the list, clear down at the end of the procession because cane sugar is not a natural food to be eaten in any considerable quantity and there is very small provision made for the digestion of cane sugar and it digests nowhere at all but in the intestinal juice. Intestinal juice digests cane sugar and malt sugar and milk sugar and it digests all the different kinds of sugar that

need digesting. Fruit sugar requires no digestion. The sugar of grapes, of apples, of figs, of pears, of plums and of all the other different kinds of fruits, these fruit sugars require no digestion. They have been digested in the ripening of the fruit. Now, in the case of fruit, the sugar is in the tree and it exists there in the form of cane sugar. That is the reason why the farmer or the woodman cuts a hole in the maple tree, lets out the sap, boils it down, and stirs it into sugar. All trees contain more or less cane sugar. Maple sugar is cane sugar. They are just the same thing, chemically. There is cane sugar in the sap of the tree and when this cane sugar gets into the fruit, just as it comes into the stem and is entering into the fruit, it finds there in the stem a ferment which digests that cane sugar and converts it into fruit sugar, which is the same way in which it is done in the small intestine. There is considerably similarity between human beings and vegetables and all of these lower organisms. We have the very same processes going on in all these classes of organized beings, from the lowest to the very highest. The process of digestion is common to vegetables as well as to animals. Starch digestion is one of the most common things in all the whole animate creation. The formation of sugar is universal in the whole animal and vegetable worlds.

Now then, we have got all of our foods digested except the salts and the salts are digested by all the digestive fluids, those that are soluble in acids being digested by the gastric juice and those that are soluble in alkali are digested by the bile, pancreatic juice and intestinal juice, all of which are alkaline fluids.

Now we have passed over the whole subject of digestion briefly and we will have a rapid review. There are five digestive food elements and five digestive fluids. Saliva converts starch into sugar, gastric juice digests albumin, bile makes soap out of fat. Now the

pancreatic juice digests fats, albumins, and starch. It does just what the preceding fluids do. The pancreatic juice digests starch, albumins and fats. The Intestinal juice digests sugar that none of the others do digest, cane sugar, malt sugar and milk sugar. Now we have gotten about all that is necessary to know about digestion.

There are some interesting things to know about the motility of the stomach and alimentary canal. Here are just a few things further that I will mention.

When food is taken into the mouth, when you begin to chew it, the digestion of the starch in the food begins right away, if there is any starch in it, and the starch is converted into sugar and the sugar is sweet and we taste it and there is a message sent down to the stomach that food is coming and the stomach begins to make ready for it, and there is a message sent down to the pancreatic glands that there is food coming and the pancreas begin to get ready for it and while the food is still in the mouth, gastric juice begins to pour out into the stomach. That is a wonderful thing discovered by Pawlow, the great St. Petersburg physiologist, and Pawlow showed when food has been in the mouth four or five minutes, there is then already gastric juice in the stomach waiting for the food to come down so that the moment the food gets into the stomach, stomach digestion begins. Then when the gastric juice has ~~digested~~ digested a little of the albumin into peptone, that small amount of peptone that has been produced by this digestive action stimulates the stomach to make more gastric juice, so here, you see, is a sort of close communion arrangement. The gastric juice is present to start digestion and when the digestion is once started, it propagates itself, just like a long row of bricks stood on end, a proper distance apart so that if you upset one brick, it pushes the next brick over and that the next one, and so on to the end of the pile. It is exactly so with the digestion. The chewing of food in the mouth starts stomach

digestion, and stomach digestion starts intestinal digestion. While the digestion is going on in the mouth, the stomach is getting ready for its part of the work and when the digestion is going on in the stomach, the small intestine is getting ready for its part of the job, and the secretions are getting all ready so that when the food comes along there will be no delay, and this digestion of food is a wonderful thing. Each effort prepares the way for the rest. If the thing does not start right at the top, it never does go right at all. If the mouth digestion is neglected, the stomach digestion is imperfect, and if the stomach digestion is not right, the intestinal digestion is not right and everything goes wrong, so it is necessary to begin with the mouth and fortunately this part is under control, so a man can choose whether he will have good digestion or bad. He can choose whether he will have a good, sound stomach or be a poor, miserable dyspeptic. It is a matter of choice. You have to work hard to get a really splendid case of dyspepsia, you have got to work and toil for years and years and years because these organs have wonderful power of endurance.

I was explaining to a lady yesterday, who has come to have an operation on her stomach, how she need not have any fear, because she has so abused her stomach she will not know anything I am going to do to it. That stomach won't mind it at all. I am going to cut a hole and make a patch on it. She had been putting into it peppers and those things and pestering and burning it with all kinds of condiments and all sorts of fried things, so her stomach was in perfect terror, but now it would be complacent over what I was going to do to it because it was so used to bad treatment that the simple operation was a mere trifle compared to it. It was really a comfort to this lady to know I wasn't going to treat her stomach any worse than she had been treating it herself. I have been telling

you the truth about it, too, but we so awfully neglect and abuse these humble servants of ours that are so faithful, loyal and true and work so hard for us, sometimes work while we sleep when they ought to be sleeping, too, if we eat those big suppers and go right off to bed. It is marvelous how they stand up to their tasks, stick to their jobs, never go on a strike until they have to.

I met a lady today whose stomach had actually gone out of business, not a particle of pepsin in it, not a particle of hydrochloric acid in it. Her stomach had simply retired from business but not because it had so much hard work to do, but simply because it has been driven out of business. It has actually been driven into the hands of a receiver, mortgages have been foreclosed upon it until it has finally gotten into the hands of a receiver. Now I am going to be the receiver for a while and I think we can fix that stomach up and get it to going in pretty good shape again, that is, if we can persuade it to do business again.

How glad I would be if I could go back to my boyhood again and have the knowledge I now have. Why, I should go in for living 150 or 175 years and I don't know any reason why we couldn't. We throw away the best of our lives by wasting our energies in overcoming obstacles that we, ourselves, put in our way, in overcoming handicaps that we have placed upon ourselves, in carrying heavy loads that we have laid upon our own shoulders. Unfortunately, ignorance is our sad lot in this world and it is only by degrees that we get our eyes opened, and ignorance is the worst of taskmasters.

Now, we begin by good mouth digestion. Chew the food well and, if chewed well, by the time it gets to the stomach, there is plenty of good, gastric juice there waiting for it. It gives it a hearty welcome and the food is quickly digested and when the food has been digested in the stomach, by that time the intestinal fluids are

already, the pancreas have got their pancreatic juice already and pour it out in a flood and the food goes down there into the intestine and the intestinal digestion begins and so the process moves on splendidly and merrily, we may say.

But sometimes things don't go that way. We don't chew enough. We swallow food too fast. It goes down into the stomach in lumps. We swallow it like pills instead of taking it down in a proper way. Food ought to be kept in the mouth until it is fluid. It ought to be chewed until it is a soft, pulpy mass before we swallow it, but instead of that we send it rasping down our throats forcing it by the inspection gate, the soft palate, and get it down into the stomach somehow and the stomach works hours and hours trying to get rid of it and we suffer inconvenience, perhaps, in consequence. The food has to be reduced in the stomach by the efforts of the stomach, when this should have been done in the mouth. Now the stomach hasn't any teeth and it can't chew so if we neglect chewing in the mouth, the food never does get chewed and the gastric juice can not dissolve food readily unless it is reduced to a pulpy form, to the form of minute little particles in the mouth. To illustrate this, just compare the difference between the solid lump of ice or several large lumps of ice in a tub of warm water and the same quantity of ice shaved up into fine bits. Suppose you should shave it up into fine shavings and throw it into warm water. It would be gone in a jiffy, but if you put it into a tub of water in a large lump, it would be hours and hours before it would be melted, perhaps. So, if you want food to stay in the stomach a long time, just swallow it in lumps, bolt it, and it will lie around the stomach a good long time and "stick between the ribs", as the lumberman says, and won't digest. Some people are very fond of hearty food because it seems to stay in their stomachs and doesn't digest, and they think it is hearty and wholesome, and especially

desirable food because of that, the worst recommendation in the world.

One of the evils caused by food lying in the stomach too long, is that the stomach is over-stimulated. The gastric glands are irritated, stimulated to an excessive degree so they become over-worked, and make too much hydrochloric acid.

Before I go on any farther, I want to show you some pictures here. This first picture is the picture of an Englishman and you see there are sixteen teeth here, eight teeth on each side, three molars, two small molars or bicuspids and single cuspids, or the so-called eye tooth and two incisors. That is what we ought to have on each side, eight teeth. Now here is the native from New Guinea. You see, his molars,—he has splendid, large molars and they have five cusps on them. Here is a representation of the teeth of the oldest relic of human life that has been found that is known of on the face of the earth. This is known as the Heidelberg jaw. No other portion of the man was found, but just that jaw and it was a wonderful jaw, with these splendid, magnificent teeth. There are five cusps on these teeth. If you should examine your own wisdom teeth, you would find that they only have four cusps. Examine the teeth of your upper jaw and you will notice none of them have more than four cusps, but you see here there are five cusps. Our teeth have been degenerating since this man used his jaws, perhaps 100,000 years ago or maybe two or three hundred thousand years ago, and while he has this splendid set of teeth, there is still room for another tooth back there, but many of you haven't any wisdom teeth at all because the jaw is so short there isn't any room for the wisdom teeth and they became decayed down in your jaw and had to be dug out by a dentist, perhaps. The third molar is disappearing very rapidly.

These teeth are the three teeth that appear to have been broken

off by a pebble that was attached to them. Here is another view of the same jaw, and see what magnificent teeth they are. Just see what a great, massive jaw this was, what a wonderful jaw it was, how large and strong it was, at least one-half larger than the jaw of the modern man, and the man that had that massive jaw must have been eight or nine feet tall, I should think, by the size of his jaw. He certainly must have been a large, strong and most vigorous man. See what splendid teeth they are, and perfectly preserved, during all these centuries, all these thousands of years, a hundred thousand years, or more, and those teeth are still perfectly preserved, not the slightest evidence of decay, and yet there are some people going around who actually haven't got a single tooth left in their mouths,—still alive, and not one hundred years old yet, and not a single tooth left in their mouths. Our resistance is so reduced, our power to resist decay is so diminished, that a good many of us are going around with rotten teeth in our jaws, while we are still alive.

Now this is something that will interest you. At the back of the tongue there are some large papillae. If you look into a glass, and put your tongue out just as far as you can, with a good light, you will see some little lumps on the back of the tongue, thirty or forty of them, the papillae circumvallate, and these papillae have the taste buds associated with them.

This is a vertical cross section of one of them. There is a little ditch running around it and when the food is chewed up and the saliva mixed with it, it runs down into this little ditch and here are the taste buds sticking up, four on each side, and in that way the constituents of the food are discovered. In other words, the food is inspected. While it is being chewed, it is inspected, and the result of this inspection is telegraphed down to the

stomach and the stomach is notified what kind of food is coming and what kind of gastric juice to make. Just think of that, my friends, what a marvelous intelligence is working here and co-operating with us in this wonderful process of digestion. Every part of it is essential. Every single movement is a part of an intelligent plan.

Here are the saliva glands and some of the nerves that are associated with them. The nerve of the tongue comes in here and sends a notice to the brain and the brain sends a notice to the stomach that food is coming that requires a certain kind of gastric juice and when that food gets to the stomach, there is the gastric juice ready for it.

The thyroid gland is not a digestive organ, but it is an antitoxic gland. One of these is masculine and the other feminine. A woman has three loves to the thyroid gland, whereas man has only one.

Here is the stomach. You find it has a very different appearance from what it was formerly supposed to have. The stomach is pictured in physiologies as a sort of great, open cavity lying across the body. This is not so at all. The normal, healthy stomach is shut. It is not a great, empty space. You see, it feels awfully empty sometimes, but even when it feels empty, it is not empty, that is, it is not an open space. It is closed. It is not a large, vacant space.

Now, you notice these are all the same stomach, showing pictures taken two or three seconds apart. You see the different appearances here due to frequent changes in the stomach. Here is the pylorus that opens and shuts under the influence of the gastric juice. The action of the stomach, the working of the stomach, set up by the gastric juice, travels all the way down the alimentary canal,

all along the small intestine and the colon, and it is due to this peristaltic activity set up, that the bowel is unloaded of all the residues of foodstuffs and the material which has been excreted by the intestine. The waste substances, poisons of various sorts, and bacteria that have been growing are unloaded.

Don't you tell anybody I told you that that is Harriman's stomach you see up there. That is the stomach of the great railroad king. Don't you tell anybody I told you that. He doesn't know I have it, his folks don't know anything about it and I don't care to have the thing published. This is an actual outline of the stomach. It has been published in a German medical periodical without the name but when I was over there I found out the name that belonged to it. Here is the pylorus shutting up, you see. Here it is getting a little more shut and by and by it is shut up entirely. Then it begins to open and by and by gets wide open and the food is spooned out. The food, when it enters the stomach, is seized by it up at the top, and is held by it, worked by it, kneaded by it, just as a mass of dough is manipulated by your hands. The food is not joggled all about in the stomach. If that is the state of your stomach, it is because you have a dilated stomach or a relaxed or irritated stomach.

This is not the stomach I thought it was. I expected to see another stomach that looked like that. The stomach of the great railroad king had a cancer in it so that it could not contract, could not work, and that was the way it was found out what was the matter with him. Sometimes the stomach is abused, as I was saying of the lady a while ago, we eat too fast, and the food gets down into the stomach in such lumps it stays there a long, long time and the stomach is irritated, gastric juice is secreted in excess and the stomach walls are irritated and ulcerated because of the excessive gastric juice,

so that it attacks the stomach walls. This is an extremely bad thing, for by and by it work~~a~~ down to the duodenum here and the acids come down here in such quantities that they set up ulcer of the stomach.

This is the old fashioned stomach. We have gotten rid of that. It is not the right shape, you see, but this is the shape it was supposed to be because the stomach was found in that shape after death, but the live stomach stands up to its work.

This is the shape of a worn out stomach that has gone out of business. When the stomach has this excess of acid, sometimes the pylorus gets shut up so tight that it won't open. In the normal stomach, as the acid is slowly spooned out of the stomach, it comes over here, and when the acid strikes the mucous membrane, comes in contact with the mucous membrane of the duodenum, reflexion is set up that shuts the pylorus up again. Then the food is retained for a time until this acid that has been sent out has been neutralized by the bile and the pancreatic juice. Then another small portion of food is spooned out and that is treated in the same way so that the food is passed out of the stomach little by little just as the digestive organs and intestines are ready to receive it, so the process of digestion goes on in this wonderful, systematic way.

But if the food has not been properly chewed, it lies in the stomach too long, the condition of the stomach becomes too acid, too much gastric juice is present, too much acid, so that when the acid comes through and strikes it irritates the duodenum to such a degree that the duodenum is afraid of being hurt, of being ulcerated, of being digested, because the stomach has the power to prevent itself from being digested, somehow, a marvelous property that nobody understands, but somehow it is able to resist this digestive process. If you put the stomach of another animal into your stomach, you can digest it. If you put a whole animal down there into your stomach.

a live oyster, for example, an oyster on the half-shell, the stomach will destroy that oyster, —stomach, liver, lights and all, everything about that oyster will be digested down in the stomach; or put a live frog in there, it will be digested just the same. You never need be afraid of having a ~~live~~ in your stomach, or frogs, or tapeworms, or anything else, for no such thing can live in a healthy stomach. The so-called "stomach worms" are a myth. They do not exist. You can not have any kind of a worm in the stomach, because the stomach will digest everything that gets into it, alive or dead, that is digestible, and it will digest a live thing just as quick as it will digest a dead thing, but the stomach has the power to prevent itself from being digested, but the duodenum and the intestine do not have that power, so when the gastric juice gets out into the duodenum, and strikes the duodenum, it has to be neutralized right away by the bile and pancreatic juice, which are alkaline, or else it will attack the duodenum and digest it and make ulcers in it, and that is the way ulcers are made in the duodenum.

There are many more ulcers in the duodenum than there are in the stomach. Many people suffering from pain in the stomach, who think they have trouble in the stomach, are suffering from duodenal ulcer. I met a gentleman today who has duodenal ulcer. We can locate it now because we can put a bismuth meal into the stomach and when the bismuth gets down here, it will lodge in the little cavity here so we can see it with the X-ray and locate the ulcer.

Day before yesterday, I operated upon a young woman. We had examined her before with the X-ray. Dr. Case, our Roentgenologist, made the examination. I saw the print myself and there was an ulcer up here in the stomach and the stomach had become converted into an hourglass shape. The ulcer had caused a cicatrix, had caused it to

contract until it had not a quarter of its normal size. It did not lie down in this way, but stood up straight like that, and there was a constriction like an hourglass, or a woman with a tight corset all laced up tight would have the very same shape. I had to make an incision in the stomach to incise it and bring these two ends together so as to broaden it out in that way. But we patched it up in good shape and I think the lady will be all right now when she gets well and her reformed stomach will do a great deal better work than it has been doing, for it has made her a good deal of trouble.

But most always the ulcer is down here in the duodenum and is produced by the excessive gastric juice. The worst thing about these ulcers is that they are likely to become cancers. Forty percent of all the cancers of the stomach begin with ulcers. So it is an important thing if you have ulcer of the stomach to cure it up for it is going to become cancer by and by, if it has not already started in that direction.

That shows a comparatively normal stomach. In the case I was telling you about, the ulcer was right there and the stomach had been diminished down to about one quarter of its normal diameter at that point and we made an incision here and brought the two ends together and that spread out the suture line this way so we broadened out the stomach.

Now the stomach in some cases gets worn out and does not have enough gastric juice and it makes less and less and less as the glands are worn out until by and by it makes no gastric juice at all. Now see what happens to that person. In the first place, he can not have any gastric juice produced, when the food is being chewed in his mouth, so when the food gets into the stomach, there is no gastric juice there ready to digest it or promote the power of digestion in the stomach. upon which we depend to set up the general motion by which

each of the digestive processes helps on the next one. The gastric juice is not there to stimulate the stomach to move the food about and to turn it and pass it on into the intestines and the pylorus is left wide open—it can not get shut because there is no gastric juice to come in contact with the mucous membrane and cause the pylorus to be shut up, so the pylorus remains open and everything goes right down into the intestine without waiting for digestion in the stomach, and if the stomach has been dilated, it sags down and the food settles down into the hollow place and remains there and the food stays there until it gets jostled out by counteractions of the diaphragm in breathing, or in other ways. That is the reason why we say to some of our patients "Lie down for half an hour on the right side after dinner". That gives the food a chance to run out through the open door, don't you see, so it won't stay down in this pouch so long. Sometimes these pouches go way down to the bottom of the abdomen and the food goes way down there and stays there and there is no power to spoon it out, you see, because the gastric juice is gone and it is very important for such persons to lie on the right side to let the food go out into the intestine, but it is a great trouble because of the failure of the gastric digestion. The gastric juice disinfects the food properly but when there is no gastric juice, there is no disinfection. The food, instead of being disinfected, goes down into the intestine, carrying with it all the germs that have been taken in, the germs in the mouth, those horrible germs that are growing on your dirty tongue, those awful germs that have come in from the butcher shop that come along with the beefsteak and mutton chop, that are swarming with germs, perhaps ten or fifteen billions in every single mouthful. You can not find such a thing as a piece of meat or a piece of steak, mutton, turkey or fish or anything of that kind in the market that is

not swarming with these putrefactive organisms and when you have no gastric juice in your stomach, you take this food in and the germs keep right on putrefying all the way down the alimentary canal. You might just as well make a meal off from dead rat as some of the horrible specimens of dead flesh you find in the meat shop. You do not know anything about what you are getting from the meat shop.

It is less than five years since the fact was gotten out in the newspaper in Boston, for example, that the State Board of Health of Massachusetts would not any longer require that all of the animals with tuberculosis should be buried, but they required only that they should be killed and that the parts that apparently had tuberculosis in them should be removed, and the rest of the animal went to the meat shop and was sent down to Boston and right into the meat markets there and sold to everybody who wanted to buy meat. There was no discrimination at all. It was not labeled, at all, and there was a great protest on the part of the newspapers and many of the leading men of Boston and they said "Won't you at least label it so we can know when we are eating diseased meat so we can enjoy it to the fullest extent?" but the thing was not done and it was found out that that thing was being done all over the United States, that in every state it was being done and that was done at all the great packing houses. They do not throw away an animal that they find has a mere cancer on the jaw, for example, or a few abscesses on the liver, they can not afford to waste so much money as that. They simply dispose of the cancer, perhaps. I have a cancerous jaw in my museum here that I got from one of the packing establishments in Chicago. I had a man down there for three days one time to see what happened. He saw them cut off a cancerous jaw from a cow and the rest went right along for fine beef.

Now, if your stomach has any gastric juice, you can depend upon it you are getting full benefit of it. If you have got good gastric

juice, you can disinfect food so you can stand it for a while, you only get without any active life in it. This lack of disinfection in the food results in the infection of the entire intestine and catarrh of the stomach and catarrh of the intestine and colitis naturally result from this lack of gastric juice in the stomach to disinfect the food.

When the gastric juice gets into the small intestine, it not only causes the pylorus to shut, but it stimulates the contraction of these ducts in the liver. It causes the gall bladder to contract and the bile ducts to contract so they empty out the bile and send it down to make soft soap out of the fats, and it neutralizes the free acid of the gastric juice and so protects the mucous membrane of the intestine, and there are still other things that the gastric juice does as it comes down here into the intestine. It helps develop the kinase, which activates the pancreatic secretion. When the gastric juice comes down from the pancreas, it can not digest anything. It has to have this kinase added to it before it becomes active, because were the pancreatic juice in the pancreas able to digest, it would digest the pancreas, but it is not able to digest until it gets down into the duodenum and there it meets this kinase which combines with the elements of the pancreatic juice and causes it to become active.

The hydrochloric acid somehow helps about that so it aids in the process of the pancreatic juice and after doing its work in the stomach, it comes down to the duodenum here and helps about the intestinal work. The saliva which is swallowed along with the food and is in the stomach, after a while becomes inactive because of the presence of a large amount of acid and when it gets down into the intestine here, it becomes active again so that it is ready to begin

work again and if you have been faithful in chewing your food, you need not worry about that saliva having only a short time to exercise its prerogative in the stomach because when the food gets out of the stomach into the intestine, the saliva will begin again its work and exercise its properties to the fullest extent so you see it is a very important thing to have gastric juice enough, to have acid enough.

The question, is, Can we do anything for a person who has lost his acid? Yes, it is now possible to do two things for that man. First, he has forever lost his gastric juice, perhaps, so he can never have it again. Now, he must select such foods as will not require stomach digestion and the very first thing for that man who has no gastric juice to know is that he must not eat beefsteak. That is the first and most important thing for him to know. He must not eat meat of any kind. You say I rejoice in telling you that, and I do. When a man has no gastric juice, it is important for him to know that he can not digest meat in his stomach any more than he can digest cast iron. You might just as well stick into his stomach a piece of cast iron so far as his stomach is concerned, as a piece of meat. His stomach can not digest it any more than if he puts it in his pocket. If he puts it in his pocket, it will lie there and rot and if he puts it in his stomach, it will lie there and rot just the same. It can not be digested, because there is no gastric juice there, and meat is one of the things that require the work of the stomach for digestion. Another thing he must not eat is hard boiled eggs or egg albumin that has been coagulated and taken into the stomach. It can not be digested because it requires the action of the stomach to digest it and convert it into liquid form so it can pass down the intestine; and milk may not be very good for him, as it forms curds in the stomach. These things that are not digested lie

in the stomach and rot and decay. Then he becomes bilious, has wretched sickheadache attacks and vomits most offensive putrefying material. Now that stuff was in your stomach rotting and poisoning your body, defiling your blood and all your tissues and that was why you felt so bad and this effort of nature to get rid of it was to relieve you of that putrefying, festering mass. If it had gotten into your intestine, it would have been all the worse for you because you would have had to stand its poisons all the way along; it would have had to be carried all the way along that thirty feet of intestine to have gotten it out of the body and you would be absorbing it, sucking the poisons out of it all the time, so you see it is better to vomit it out than to dispose of it in any other way.

Some people are living in a state of this chronic biliousness because they have rottenness all the way along. They have no gastric juice in the stomach, no acid, and the whole alimentary canal gets into a state of infection. Then this infection works up into the bile ducts,—then there is gathering of the bile ducts and jaundice. Then it works up into the gall bladder and causes catarrh of the gall bladder and the patient has gall stones, and then gall stone colic, and awful pain; and then it works up into the large intestine, then into the appendix and it gets into the other parts of the colon and sets up colitis and paracolitis, and diverticulitis, and then comes cancer; **Cancer** of the stomach and cancer of the colon are among the most frequent forms of cancer to which human beings are subject. About one-third of all the cases of cancer are cancer of the stomach or colon, but there is almost never a case of cancer of the small intestine. The small intestine is better able to take care of itself. There are two things a man without hydrochloric acid in his stomach can do, one is

to eat food that does not require gastric juice. He must not eat meat, he must not eat fish, he must not eat fish or oysters or anything of that sort, and it is very important that he should not eat eggs very freely, or very much milk. What shall he eat then? There are lots of things he can eat, all the grains and all the splendid fruits and the legumes and the splendid vegetables. All of these things require no gastric juice. They are all digested in the intestine. They can pass right on through the stomach and go right on into the intestine and be well digested there, provided they are properly prepared, but they must be very thoroughly chewed. Everything must be chewed so that the intestine may have a chance to act upon it because the stomach work is lacking and the mouth must do its work extra well in order to make up for the work the stomach does. The other thing this man can do is to eat food which contains hydrochloric acid in a harmless form. We can not help him very much by giving him hydrochloric acid because we can not give him enough of it. If we should give him enough of it, it would take the mucous membrane off his throat because the stomach has to have, for the digestion of an ordinary meal, about forty or fifty minims, about one and one-half teaspoonsfuls of chemically pure hydrochloric acid, a teaspoonful and a half of the strongest spirits of sea salt or muriatic acid. The stomach requires that much for the digestion of an ordinary meal, and to get that into the stomach, you would have to dilute it with about a pailful of water and it would dissolve your teeth then, put your teeth all on edge, take all the enamel off and it would scald the throat as it went down, but the stomach is able to bear this strong acid. Some of you have had some of it come up from your stomach sometimes and you know what it tastes like. That was hydrochloric acid that was developed in the stomach in excess and that is

A Talk to the Patients at the Battle Creek Sanitarium, Thursday, April 18, 1912.

At 9:00 P. M.

By

J. H. Kellogg, M. D.

I am not going to give you a lecture tonight. I had to do an operation for appendicitis and so I thought I would let the pictures talk to you tonight and I hope you have had an interesting time and an instructive time in seeing the devastation of the fly. Now is the time to begin to fight the fly. (The fly has been discovered to be one of the worst enemies of our civilization and I suppose ~~any~~ ordinary means with which we are in contact is so subtle and has been so unsuspected as the fly.) When I was a boy I used to repeat a little phrase that I used to hear in school, don't kill the fly, the ^{petty} fly, etc., but nowadays kill the fly, the awful fly. Swat him. We have a pretty good chance to do it. That is what the newspapers are all saying just now. It is, "swat the fly" and it is important advice to give. It is important to know a few things about the fly. (In the first place the fly does not generate spontaneously. It is not the result of spontaneous generation. The fly does not occur about your house unless you invite the fly or rather make provision for development of flies. If you have any garbage cans about there is a place where the fly will remain for some days. The eggs will very soon develop from one fly, ten times many millions. Even billions of flies in a single season. If there is any barnyard about that is exactly the place for the fly. The fly deposits its eggs in filth because then the young maggot will find food ready at hand upon which it can live. It is a wonderful provision of nature for disposing of decomposing things. The young fly is the scavenger of that particular kind of rubbish and so it has one very useful occupation as a scavenger while it is young. The maggots grow very rapidly and in a very short time develop into flies. The fly is all the time visiting these foul places and you see just what it does. It gets its feet covered with filth, then comes into our house, ~~it~~ ^{lights} upon a piece of bread which you are just going to put into your mouth and the fly comes along and puts a punctuation

mark on it and that punctuation mark is full of the most horrid kinds of germs, maybe typhoid fever germs or cholera germs. (It has been discovered that another germ which causes colitis is also carried by the fly. These germs which are the cause of colitis are carried by the fly in just the same way as other germs. So you see if these flies have access to the colon excreta of persons suffering from colitis they simply carry this disease off to someone else's breakfast table and they will finally get infected.) One reason why this disease is spreading so very rapidly is because the flies spread the disease. If it were not for colitis this institution would almost have to shut-up shop and go out of business. Colitis is the thing that keeps us here. If it were not for this disease and the things that arise from it there would be comparatively little for doctors to do. It is getting to be one of the great maladies of civilization so we must avoid the evil in every way we can and one of the principal ways is to avoid the fly or get rid of the fly. Food must always be screened away from flies. No fly should never be allowed near the dinner table or where food is. Flies alight upon food and you eat that food and you may be taking in tuberculosis or typhoid fever, or cholera or dysentery or colitis or several other maladies that might be mentioned so it is very important to remember these things. I hope the pictures you have seen tonight will ^{not} be soon forgotten. Then just a word about the milk. It is often through the milk that these germs are introduced into the body, also typhoid fever germs and colon germs particularly. (When a baby is born into the world Nature puts into its alimentary canal protective germs. That is a wonderful thing that has been discovered within the last ten years. Within twenty-four hours after the baby is born there are millions and millions of friendly germs introduced into the alimentary canal, the bacillus bifidus. We may call them flowers if you please. The bacteriologist speaks of the germs just as the botanist speaks of flowers. They are called a flora. They belong to the vegetable kingdom so it is a beneficent flora, a protective flora which is found in the alimentary canal of a child. Now as long as the child is breast fed this

state of things continues but when the child becomes a little older and begins to eat cow's milk if its mother refuses to nurse it because she wants to go into society and compels the child to eat cow's milk then the poor little thing begins to get the colon germs from the barnyard you see. They drive out the friendly germs which are very welcome and are very easily destroyed so they are very, very quickly obscured. They are not entirely destroyed. They are overwhelmed and while they remain living in the small intestine to some degree, they do not grow with sufficient exhilarance to act in any way in a protective manner so you see it is important to protect the milk) as well and the description you have seen here tonight of the difference between the old way and the new way is a very impressive one.

This slide was prepared by Mr. Edson at large expense and a good deal of trouble, this series of pictures and it is really a very interesting and ingenious way of presenting the matter. I am glad to tell you however, that there ^{have} been quite a number of improvements. You will notice the cows are being brushed off with the brushes. That is not allowed any more in the very best places but the cows are cleaned by a vacuum cleaner the same sort of a thing that are used for cleaning carpets. If you are here later tonight you would see a man cleaning our rugs, etc., with a vacuum cleaner and this same method is applied to the cows only the same methods, the vacuum method is also applied to the milking of the cows so that the cows are milked by a vacuum milker and hands never touch the cow. The cow is washed thoroughly, dried, then gone over with the vacuum cleaner so there is not a particle of dust. The trouble with brushing a cow is it fills the hair full of germs /that are on the cow's body. Some of this dust settles into the milk but by the new method there is no dust. It is all gathered up into a receiver so there is no dust. I am very glad to announce one thing more and that is that every drop of milk that is served on the Sanitarium tables is obtained in just the way ~~if~~ I have described to you. The stables are just as clean as a kitchen and the cows are absolutely cleaned by means of this vacuum

cleaner and the milk is never touched by hand at all. The cows are milked by the vacuum method that I have described to you so the germs are reduced sometimes to not more than one hundred germs in a quantity in which the law allows a -----
-----.

In commercial milk two hundred thousand germs and where the commercial milk contains anywhere from two hundred thousand germs up to three or four million germs not more than one hundred will be found by this method after preparing the milk in some cases. This is what is called ~~sterilized~~ ^{certified} milk while we have not in Calhoun County any society so that is proper to apply the term ~~sterilized~~ ^{certified} milk to the milk furnished on our tables. I think it is proper for me to say that we can almost guarantee that the milk provided ~~that~~ is much better than the ordinary certified milk because it is produced not only by the improved methods shown by ~~the~~ Mr. Edison's film but by still further advanced methods which include the vacuum cleaning and vacuum milking and I think it is important for everybody to be informed of this method because (the fly and bad milk together in the summer time kill more children and make more adult people sick probably than any other two causes that could possibly be mentioned because they are the means of spreading infection) and they get right into everything -----

I thank you for your attention.

End.

Question Box Lecture at the Battle Creek Sanitarium Parlor, Monday, April 22, 1912

at 8:00 P. M.

by

J. H. Kellogg, M. D.

Note Book Page 265.

Q. What is the cure for insomnia of 15 years standing with headaches?

A. Well the only cure for insomnia is to sleep. Sleep is Nature's best restorer. It will cure insomnia and a great number of other ills. You are only getting well while you are sleeping. It is a good plan for invalids to remember that so if you are not getting nine or ten hours sleep every night you are missing a great deal. Every sick person ought to be in bed at least nine hours a day. Don't forget that because it is only while you are asleep that you are getting well. Children only grow while they are asleep. Plants grow in the night, not in the day time. Plants like animals gather food during the day, work during the day but grow during the night so Nature you see works while we sleep. That is the order of Nature. Well, how about sleep when you can't sleep? That is the question. There used to be a plan suggested, I remember a good many years ago about counting sheep. One sheep jumped over the wall. Two sheep jumped over the wall. Three sheep jumped over the wall and etc. I suggested that to a man and he tried it and he said they all jumped over the wall at once and he couldn't keep them going in procession so he got to worrying about the sheep. A man down in Rhode Island sometime ago made an improvement on that suggestion which was really a very good one for putting people to sleep when they are awake only because they are whimsical. Some people do not sleep because they have a fancy that they cannot sleep and because they try to sleep and if they would only cease trying to sleep they would go right to sleep but they try to go to sleep so hard that they keep awake. The thing is to keep the mind off from that idea. Trying to count one hundred backwards will sometimes do it besides counting sheep. Forget the things that are keeping you awake. The reason

for instance
a picture is stored up, a picture of some accident/that has happened on a
railroad train perhaps when it got off the track and the women screamed and the
~~screamed~~ and the men pouted and stopped smoking for a little while and began to
think of something more serious and you think about that picture and if you keep
thinking about it you get to thinking about it and you can't get your mind
off from it. The trouble is these fingers have taken hold of one another so
hard that they cannot break their hold. Now suppose it is business you
are thinking about; you have been driving sharp bargains all day and somebody
pretty nearly got the best of you and you had your own game ^{like} right enough and you
got to thinking about and thinking about it until your mind runs on your
business. There is something in your business that worries you, something ~~that~~
not going right in your shop or factory or some other place, some -----
you are suspicious of perhaps and you are thinking and thinking. You can't
get your mind off that business. Now the reasons/these impressions/are made
in the business are so strong and there is so much blood in that part of your
brain because it has been used so much that it keeps you wide awake ^{when} and the
rest of the brain is ready to go to sleep. These fingers keep ~~pushing~~ out
don't you see and take hold of these other cells. They keep pushing out so
far that they get hold of each other and get in contact and that keeps you
awake. It is like the push button at the door. Sometimes it sticks, want
let go and the bell keeps on ringing don't you see. Now that thing happens
here. When one goes to sleep it is because there is a break. You can't go
to sleep until that contact is broken because so long as the ~~contact~~ contact
is made the electrical current so to speak, that produces consciousness ~~and~~
keeps running ~~the~~ and the consciousness is maintained.

you cannot sleep is because there is a certain strain of thought perhaps going into your brain that you cannot break and you must have something to break it. Now let me tell you another word about that. Suppose this represents the brain. Here is the spinal cord coming off down here. Now back of this part of the brain is where ideas are stored. In the front of the brain is the part where we do our thinking and this little part of the brain is the part of the brain that controls the activities of the body. For instance, here is a little place up there that has charge of the leg muscles and along side of here is another center that has charge of the arm muscles and here is one along between the two that is the swimming center. Then off down here somewhere is the center that is the talking center and there are other little places on the surface of the brain that have charge of other parts of the body. There is a little bit of a spot up here just a few little cells that have charge of the big toe, of the left foot and on the other side some corresponding ones that have charge of the big toe of the right foot so the whole body is controlled by this simple part of the brain. Now, when we are lying quiet in bed and ^{are} not using any of our muscles at all this part of the brain is still going to sleep but back in this part of the brain where memories are stored, memories of images, exact images, sound images, sight images and images from various sources and pictures we have seen in our lives, these are stored up here in the back part of our brain. Now these cells have long fingers some of them, and these long fingers run out and take hold of ~~every~~ the fingers of other cells. Suppose now here is the brain cells there in the front part of the brain and here is the finger that comes out and over here is another cell that has a finger. This finger takes hold of that finger. Now in this cell down here there is a picture stored. Of course, it is not one cell, it is a thousand cells or twenty thousand cells or a great number of them. Suppose

These little cells back here keep ringing away like a telephone. You know how sometimes exasperating it is/in the middle of the night to hear that telephone ringing, ringing, ringing. You think you will go and pull it down. Sometimes perhaps you do, and that is what I did this afternoon, with my telephone so that I could get through with my work. That is what you would like to do when you get asleep and you want to sleep without being disturbed you leave the receiver down off the hook so they can't ring you up because these cells down here when they get to going as hard as they do sometimes in business they keep ringing you up, ringing you up and keep the front part of your brain busy. Now it is possible that keeps you awake. We will say. Here is a nerve cell down there that keeps you busy, thinking keeps your brain going all the while and it won't let go. It keeps up the contact here. Now here are some of these other cells that we are talking about that have charge of motion and you get to thinking if you get them at work and get your brain in contact with these other cells up here you see/you will be able to call off these cells to break their contact and relieve their tension. So here is a very simple device for a person who has difficulty in going to sleep/ just simply because for no special reason when there is no pain and no special reason for you keeping/awake it is simply because you are whimsical about it and cannot go to sleep. Instead of counting one sheep goes over the garden wall, two sheep jumped over the garden wall, three sheep jumped over the garden wall, etc., which gets very monotonous and you get tired of it is solved. Now take a piece of paper and a pencil. This is the invention of a man down in Rhode Island and it works first rate. Have a little piece of card and a lead pencil and take a deep breath this way and make a mark. Now take another deep breath and make another mark, another breath and another mark. Every time you take a deep breath make a mark. The next morning you can count up and see how many marks you made, don't you see. By doing that you have got to watch your breathing and to make that mark and to forget all about that business you see.) These cells that are ringing up the telephone

up here are called off. You switch them off the line. You have got somebody else switched on and it is a monotonous thing. (It doesn't take any intense thought to take a breath and to make a mark. You can do it without any thinking at all you see so you go right on. You do it under the bed clothes with your hands all composed in a good position to go to sleep so there isn't no restraint anywhere, no discomfort of any sort. You are just composed ready to go to sleep and you go on with the job of breathing and marking and you won't get over 20 marks before you will be asleep. It is very very rare indeed that a person gets beyond their 20.) But now suppose it is another kind of case. Suppose you cannot sleep because your blood is full of poison which irritates the brain and the brain is so irritated and excited that this keeps you awake. Maybe it was that cup of tea that you had for supper. If you do not sleep because you had a cup of tea you do not deserve to sleep because you know better. Everybody knows that tea will keep you awake and just think of it. Suppose yesterday your doctor gave you a dose of medicine and you said the next morning to him, "Doctor your medicine kept me awake all night and there must have been some poison in it, you must have made a mistake." That is the very thing it does and there are poisons manufactured in the body that will keep a person awake unless they are eliminated when he needs to go to sleep. If he is real tired and wants to go to sleep that thing will keep him awake just the same. Think what a poison it must be and that is one of the best proofs that it is a poison and the same thing is true of tea and coffee. Well, tomorrow night you won't take that cup of tea, will you? If you don't sleep tonight you will know better. When you have once learned ~~to know~~ what tea is you will stop tiding with it. You won't have anything more to do with it. When a man swindles you once in business you cease to do business with him. I think it was Coleridge who said once, something about the cup which cheers but not inebriates, but it does inebriate. (Tea does make a person so drunk that he cannot sleep? It intoxicates him and when you have once had the experience by being kept

away by tea through having been poisoned with tea that ought to be enough. You ought to cease doing business with that thing because it is a fakir, a robber, a swindler. It promises something it does not give) but suppose as I have said before, you have got some poisons in the blood that is not tea and it is not coffee but it may be poisons generated within your own ~~blood~~ body. It may be some of the poisons manufactured down in the small intestine. It may be some of those horrid poisons that are generated by germs in the intestine and they are keeping you awake and that is the most common of all causes of sleeplessness of insomnia is these germs in the interior of the body. The horrid colon germs are unquestionably the most common cause of sleeplessness. Almost always when I have met a man that could not sleep and I happened to catch his breath it had a bad odor, almost a stench. (When a person cannot sleep generally it is because his blood is charged with poisons that are generated by putrefaction going on in the intestines and his brain is irritated so that he cannot sleep.) Now in such a case the thing to do is to remove the cause and the cause will be readily removed in most cases by taking such a course of treatment and diet as will get the tongue clean. When the tongue ~~is~~ clean good sleep will come. (Get rid of that bad taste in the mouth, that bad odor of the breath, that heavy coat on the tongue and there will be no more trouble about sleeping.) I have seen that verified a thousand times, yes, a thousand times. It is a most common every day experience with us here but you see ^{say} I can't sleep because my head is hot but there is some reason why your head is hot. Perhaps your feet are cold, your circulation is unbalanced, you have been wearing tight shoes, getting your feet wet and then have gotten chilled. Perhaps you do not wear ~~thin~~ warm woolen socks as you ought to in cold weather or warm woolen underwear as people ought to. You are improperly clad. Your feet become cold and the brain is enormously congested. Such a person had better take a hot water bag to bed but some people complain that their feet burn and I recommend a cold water bag for such people and I don't know anything that does so much good as cold water to

to put a person to sleep. The cold water applied to the feet ~~and~~ reflects it upon the brain, contracts the arteries of the brain and cools off the brain as well. Sometimes these people who cannot sleep don't sleep because their head is too hot and they find relief by appealing to gravitation to help them out. Raising the head of the bed six inches or a foot will help such a person to sleep.

When I was in Italy some years ago I saw something that interested me very much. I saw some poor Italian boys pile up under a ^{hot} midday sun in the month of May which is quite hot in Italy. They were lying on a side hill with their heads down hill sleeping in that hot sun. I didn't understand it at all. I came to look into the matter and found that those boys were half starved and they were so anemic that they could sleep better with their heads down hill than up hill so I took a hint from this when I got home and when I found an anemic person, a ~~few~~ individuals who could not sleep could sleep perfectly well when I raised the foot of the bed and I have set a good many people to sleep by simply putting the head of the bed low so enough of the blood would run down into the head to nourish it and the result was good. There are other things that I might say with reference to sleeping. (A very common prescription is to eat a hearty meal ^{just} before going to bed. I knew a man who lived in Kalamazoo. He was dead long ago but he used to get up at midnight every night to eat a square meal. His wife had to get up every single night and get him a square meal at midnight. Just think of that. She thought she would have to apply for a divorce but Nature helped her out so she didn't have to get a divorce.) Give a dog a very hearty meal and he will lie down behind the stove and go to sleep. Many people are often drowsy after eating. I have known people to fall asleep at the dinner table and the reason for this is that the taking of food into the stomach sets up the digestive process, stimulates the digestive process and causes a filling of the blood vessels of the abdomen and that diverts too much blood from the head, as there is not enough to keep the brain going so an anemic ^{condition of the} brain is produced and that always causes drowsiness. That is the usual effect. Sometimes it does not, but now this sleep-

lessness that is accompanied by headaches means toxemia. That is, a toxic insomnia and most all insomnias are toxic. Let me tell you what to do instead of eating. If you have that kind of sleeplessness that is relieved by eating something please notice that if you eat a hearty meal and go to sleep after three or four hours you wake up and cannot sleep any more and you do not seem to have been very much refreshed while you slept. Let me tell you a better way. All you want is to get the blood out of the head into the abdomen and a very simple way to do that is to put on a moist abdominal bandage. Wring a towel about two yards long out of cold water or half of it out of very cold water, wring it very dry and then wind it around the body, the whole of it. Then cover it with dry flannel and then cover that with mackintosh so as to keep the heat of the body in and it will soon get warm and it will act like a poultice and keep the skin very warm and will drive the blood down into the skin and the viscera of the abdomen. All the vessels outside and inside of the abdomen will be filled with blood and that will bring the blood out of the head and it won't tax the stomach either don't you see and it won't stimulate the brain later on.) The reason why ^{one} gets so sleepy first when he eats something is because the blood is drawn away from the brain but in three or four hours he is awakened and becomes more wakeful than he was before because the products of digestion are being ~~absorbed~~ ^{absorbed} into the blood and they are stimulating the brain so that is a very poor way to induce sleep. The ^{worst} best thing in the world to do to induce sleep is to take medicine. (The most sovereign remedy of all I have not mentioned to you. That is the neutral bath, a bath at 92 to 96 degrees. It is marvelous how such a bath will put people to sleep. This bath has such ^{wonderful} controlling power that at the present time it is used in every first class insane asylum in the United States for quieting people that are insane and cannot sleep. In every insane asylum in the United States of any prominence at the present time they have the continuous bath, what they call the continuous neutral bath in the disturbed wards. The disturbed people are separated by them-

selves, the people who are making a noise all the time. That is just wonderful. I was down at Kalamazoo sometime ago and they took me into the disturbed wards and there they had six baths and a patient in every one of them. They pointed out to me a woman with her arms folded and her eyes closed just as quiet as a sleeping infant. She was perfectly still. Fifteen minutes before that woman had been wildly raving and made such a disturbance that they had to put her into the bath and she went right off to sleep. I visited the great insane asylum at Kankakee, Ill. some years ago and the Doctor in charge said, "Doctor Kellogg, I want to tell you a story that I think will please you. You know you sent down here last year a man to teach massage to our nurses. When he had been here a few days there was a case brought in a woman who had been insane for six weeks and had not slept a wink in all that time and was a terrible maniac, was so wild that it took six nurses to hold her to take care of her and we could not make her sleep. There wasn't a thing but chloroform that would put her to sleep. The largest doses of opium we could give her would not put her to sleep at all. We gave her larger and larger and larger doses until we didn't dare give her any more and there was not a thing but chloroform that quieted her at all. She said your man found out about it and he said, "Let me see what I can do" so he had a bath prepared and he was very particular about the temperature. He said it must be just exactly 92 degrees and he got her into the tub and in fifteen minutes she was quite and in two hours she took a nap and we gave her another one at night and kept her in there three or four hours and she went to sleep and slept all night and we never gave her another dose of medicine and in three months she was perfectly well and went home and that was the worst case to ----- me here that we have ever had here and the most wonderful cure we ever had.) He said we are using that bath now and we are very sorry we didn't know about it and didn't find out how much that man knew so we could have gotten it out of him before he left us and that we didn't stand up for a jewel he was until just as he was going away This young man was my secretary and they wrote up here for someone to come

down and teach massage. I said to this young man, "Now Doctor you are just about to get married and suppose you take that for your wedding trip. It will be a missionary trip too. He said, "All right, I will do it." I couldn't spare him any longer than the two weeks so he took his bride and went down to the Kankakee Insane Asylum and I said when he was going away, "Now then, Doctor they want you to teach massage but it far more important for them to know about hydrotherapy so you better take along some things with you. Take a thermometer and a good supply of everything necessary and you watch your chance and something will happen while you are there that will give you an opportunity to work them in and you make the best of your opportunity to work in hydrotherapy because that will do ~~the~~ those poor lunatics more good than anything else that you can possibly do for them so ~~here~~ he he was ready and looking out for it and the opportunity came. Well, the same of the neutral bath spread out from Kankakee to a great many other institutions and two or three years ago some of you will remember a campaign down there that the State Board of Charities made. They made quite a show about it. They telegraphed to me and wanted me to prepared a little circular for them and I did prepare a little circular for them about different kinds of water treatment and sent it down to them and they sent them all over the state among the politicians to show the need of ^{an} extra appropriation to be made for bathtubs, and showerbaths and other appliances for the insane asylum of the State of Illinois and will do as much good as osteopathy perhaps.

Q--If hot water is used before meals to rid the stomach of any undigested food will its use produce an inactive state of the bowels?

A--It is somewhat relaxing. Hot water has a somewhat relaxing effect. It produces a atony and a weak relaxed condition of the bowels in some cases. It is not so beneficial as cold water. Cold water is better than hot water for the bowels.

Q. What is the best way to rid one of gas on the stomach when taking a non-acid diet without much relief?

A--I will be glad if this patient will apply to me personally because we must look into the case carefully. Every single case is a law to itself in some respects.

Q.--Tell us something about ions and ionization?

A-- That is a rather intricate subject. I don't know that I can tell you the subject in a few words but I can give you something of an idea of it. I suppose everybody who has not forgotten entirely all about his physics and chemistry that he learned in high school will recognize the fact that the atom is considered to be the lowest form of matter, the so-called element of matter. Atoms are supposed to be the ultimate elements of which all the solid materials with which we are familiar are made up. It was supposed that matter could be divided and subdivided and subdivided and divided and divided and divided time and time again until we get down to the atom and that could not be divided any more. These atoms are supposed to be very small, so small so inconfusibly small that they cannot be further divided. Yet their size has actually been calculated and found to be some fifty-four billionth trillionth of a cubic inch in diameter. In one cubic inch of gas that number of atoms are to be found. In a gas the atoms are wider apart. In a solid there will be a great many more than that. In ice for example, in steam, perhaps, there would be a number I have already mentioned but in ice there would be eighteen hundred times as many, so we would have to add another period, you see and multiply by eighteen. That will be almost two-thousand times. That would be pretty nearly one hundred billion trillion.

Now the discovery was made soon after radium was discovered that radium was throwing off a gas, and on investigation it was found that these rays that are thrown off from radium, the gas that is thrown off, had atoms much smaller than the hydrogen atoms which were supposed to be the smallest of all. These atoms were found to be a thousand times smaller than the hydrogen atoms and a new conception was found of the constitution of matter. These minute particles a thousand times smaller than the hydrogen atoms were found to be loaded with electricity. Every one of those little particles or corpuscles had a charge of electricity and in the atom these charges were saturated. Negative particles and positive particles were joined together each one saturating the other so that in the atom, the atom itself showed no electrical properties but the particles when the atom was broken up and the particles separated out these particles showed their special properties. For instance, under some circumstances positive particles would be thrown off. That is what radium is all the time doing and what the X-ray is doing. It is throwing off positive particles and these positive particles deposit a charge and are attracted by a negative pool, anything that has a negative charge. On the other hand, under some circumstances negative particles were thrown off so they positive rays and negative rays. While it is ions. These particles are called ions and one of these particles loaded with positive electricity or negative electricity is called an ion. Ionization is causing these particles loaded with electricity to enter some part. For instance we ~~sought~~^{want} to have positive particles taken into the body. We put these ions upon the skin ~~iodine~~ for instance in the case of iodine. We want to get the ion to iodine carried into the body. We put some iodine on the skin, put a positive pole upon the skin then pass a current of electricity through and that will carry the iodine in. It will go along with the current,-- that is ionization and that is what is done with radium. If radium is put upon the skin then a positive ~~of~~ electricity is applied it carries the radium in so the tissues will become saturated or impregnated with the particles of radium. That is ionization. This method is found to be of very great value in treating the most obstinate forms of rheumatism, neuralgia and in certain forms of cancer.

Some wonderful cures have been effected which have resisted all other measures. There is a good deal more about that. I have a little paper on the subject of radium that will be published pretty soon then can put something into your hands that you can read on the subject that will be more interesting, but we must hurry on.

Q—Why do physicians prescribe meat for tubercular people and want them to have it three times a day?

A--Why, I suppose doctors share with the general public the prejudice in favor of meat. The ox is a strong animal and the idea is somehow prevailant in the Wales that if you want to be strong you must eat a strong animal. Down in Egypt they have the idea that ~~xxxxxxx~~ if a man wants to be smart he must eat a fox. So they catch a fox and eat him in order to become cunning like a fox. Down in the Sandwich islands if a man killed ^a great chief, he had to eat him so he could become perfect like him, have his courage and fortitude and ability to fight. There was a court session in one of the Sandwich islands some years ago. I san an account of it in the papers and a man claimed a peice of property. He gave various proofs to the court that he was the owner of that property. He finally gave as conclusive evidence the fact that won the case for him, and this was that he ate the owner. When he ate the owner he had everything that belonged to the owner. Now people have that idea, that if they will eat the red meat of an ox they will have the red blood of the ox and that they will have the energy ~~of the ox~~ and muscular power and the strength of the ox so people are eating great quantities of oxen and great quantities of cows and pigs and sheep. Some people get the habid of eating dead things so they go on down to puny chickens, rabbits, robbins, thrushes and things of that kind, and quails, ^{puny} ~~stony~~ little things. I got a picture yesterday from a friend of mine Dr. Lerrigo, a doctor who practices medicine over in the Philippines. He has been over in this country, just went back and landed in Canton, China and he sent me a picture. He went upon the market and he saw something for sale in the meat market and he took a photograph and sent it to me. The photographs shows

a number of cages with cats inside that are put up for sale for eating purposes. Over in China they eat both the cat and the rat and are justified. The same thing is done in the Philippines. They eat cats in the Philippines and they also eat dogs.) I have a brother who is a surgeon in the army and he told me that when frequently in the Philippines he/saw dogs hung up in the market. It was a very common sight. going up to the ~~the~~ filipino market to see dogs hung up there for sale and I think I told you a little while ago about the man in Los Angeles not the very long ago who ~~xx~~ found a number of a dog's colar in his sausage. That was quoted from the Los Angeles Times and he found the lady that owned the dog that had that colar and the lady who lost her dog and the dog has been picked up had taken to the pond and finally had gotten into the sausage and he found the number of the dog colar in the sausage. He had already eaten a piece of the dog so he knew what became of that part of the dog at any rate, so he could tell the lady he had found a piece of her dog. The dog belonged to one of the aristocratic ladies of the town and she felt pretty bad when she found what had become of her dog. Notwithstanding it had had such an unusually respectable burial.

Q--Are onions hard to digest?

A--Yes they are rather hard, especially when they are raw. If you are going to eat onions at all they must be well cooked, well boiled and it is well to boil them in milk so the milk will absorb the odor. The best way, however, to prepare onions is to roast them in the oven. Cover them up with sand if you want to. The onion should be smothered and roasted at high temperature which will vaporize the irritating essential volatile oil.

Q--What should be done for a young man twenty-three years of age who has not enough acid in his stomach?

A--He certainly needs an out of door life and cold water two or three times a day applied to the skin to stimulate his general vital processes?

I didn't say enough on that question of meat eating in consumption. I should have said another word about it. The idea has been very prevailant

in the medical profession that consumptives need a great deal of meat and they have been fed on large quantities of meat and still are in some institutions in most institutions but/the doctors in charge are finding out that it is a great disadvantage and the practice is being discontinued. (Over in Germany an institution was started to keep consumptives on raw meat exclusively and the institution died of consumption within six months and the thing was an absolute failure.) I sent out some little time ago a paper which I read on the subject of diet in tuberculosis. I sent it out to twenty or thirty institutions for the care of this class of patients and I got a good many letters back and I pointed out the danger of a meat diet in tuberculosis and I got a good many letters back from superintendents of institutions in which they showed their experience and heartily agreed with the position I took in the matter. (Within the last three months we have had the superintendents of two consumptive Sanitariums who have come here for the purpose of learning how to establish the Battle Creek Sanitarium system in the consumptive sanitarium because they are getting convinced that the meat diet is a disadvantage. I received a letter from Dr. Steinberg, formerly surgeon general of the United States army and not^w superintendent of an institution for consumptives in Washington, D. C. in which he said he had become thoroughly convinced that the meat diet was a bad thing for consumptives but the high protein was a bad thing for consumptives and he had discontinued it. Our experience in treating this class of patients has been that the meat raises the temperature and accelerates the breaking down process, and not only that but it menaces the kidneys.) (The man who has tuberculosis of the lungs doesn't die because he hasn't lungs enough to keep him alive. These patients always die when they still have lungs enough to keep them going yet, but sometimes they die from hemorrhage but they always have still lungs enough left to keep them going. They do not die from lack of lungs then, they die from disease of the kidneys, almost every one of them. 86% according to the statistics of Phitts Institute of Philadelphia, 86% of all consumptives who ~~they~~ die there in that place die with badly diseased kidneys. A good many consumptives on a meat diet get well of consumption and die two or three years

later of Bright's disease that was induced by their high-protein diet. Prof. Fisher, the head of the Political Science Department of the Yale University in this room was once a victim of tuberculosis. He has told this story right here ~~in this room~~ a number of times. He had tuberculosis and was given up to die. He had a three years' siege out in the Rocky Mountains and finally got over his tuberculosis, but he had terrible nervous exhaustion, simply chronic auto-intoxication. He came here and got rid of his meat and got well. Now the last time I saw Prof. Fisher, he was here a few weeks ago and he said to me, "A pretty strong argument against the meat diet is the fact that I was a great meat eater all my life and when I got tuberculosis he didn't have to change his diet because he had always been a very great meat eater. If Meat eating is good for tuberculosis, why have I got tuberculosis when I live almost entirely on meat, so I was a very great meat eater. It has been supposed that meat is good for consumptives because the said dogs don't often have consumption, but they do. Dogs do have consumption and lions have consumption. All kinds of animals have consumption when they are shut up in doors. It is the indoor life that produces consumption. (It is not the meat diet nor the non-meat diet that produces consumption but the indoor life. (Cats are just as proof as dogs are against consumption out doors but shut them up in the barn or up in the house and they get consumption just as cows or any other indoor animal does, just as people do.)

Q--Would removing the tonsil change the tone of the voice?

A--It will change it but won't hurt it. It will improve it.

Q.--What causes rheumatism?

A--Rheumatism is a disease due to toxins generated in the colon. That is my opinion in general,--that is chronic rheumatism. Acute rheumatism is generally due to infection with germs, infection of the blood.

Q--~~When~~ Can auto-intoxication be the result of or caused by a person's temper feelings of depression, such as anger, hatred, malice, worry etc.

A--Certainly, certainly. Anger is a poison, a deadly poison. Hate, envy and worry

are all of them deadly poisons. They are real poison, not simply imaginary or psychological poisons but actual poison. A mother got very angry. She had an infant at the breast, a baby and the baby had a fit. That has happened many times when the mother gets angry ~~at~~ with a baby at the breast. The baby has convulsions. You have all heard of that. That is not a new idea at all. Why does the baby have convulsions? Because the mother's anger produces poison in her blood and then the baby absorbs the poison with its food, so the baby is poisoned. Now the mother is poisoned just the same as the baby. She doesn't have the convulsive fits. She has a fit of anger and that fit of anger does her a deal of harm. Jealousy, worry, anger, hate are poison to the person that indulges in such emotions.

Q--Can you suggest any substitute that would furnish the same joy and comfort that tobacco does?

A--I don't know of anything I could suggest as a substitute for tobacco. Tobacco is one of the things that do not require^a substitute. It is like lying, cheating, stealing and killing. It is a crime and it does not require any substitute. It is one of the things that you should not do, the use of tobacco. It is a horrible thing. This thing is very noticeable, this appetite for tobacco and whatever comfort or pleasure one may experience from it is entirely artificial and here is one thing the tobacco smoker ought to think about and that is this felicity he gets from tobacco is an unearned felicity. Now all true felicities all true joys ~~things~~ must be earned. The rest of the laboring man is sweet. He has earned the right to sleep. Paul says that, "He that will not work shall not eat". Nature says the same thing too, takes his appetite away or else kills him with over eating. It is a great deal better to lose appetite than to keep it if one is not going to work, so we must do something to pay for every bit of real felicity we have in this world but the felicity that comes from tobacco or tea or coffee or alcohol, these things are unearned felicities to which we are not entitled and they are all

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Question Box Lecture, April 22, 1912, Cont. from note book page 275.

and now they are supplying these facilities to insane asylums everywhere and the lunatics are getting just exactly as good treatment as you get here in these institutions and the neutral bath has this wonderful power of quieting. That is why I am telling you these stories so as to impress this fact upon your minds. If you cannot sleep at night don't send for the doctor and get a dose of morphia, bromide of potash or chloral, aspirin or any other of those things. Every single one of them is a poison. (There is not a single drug that will put a person to sleep that is not a poison. Of course, a drug will put a man to sleep and knock a man in the head and he will go to sleep. That is just what a drug does. It simply hits a man in the head. Hit him in the head with a club or a brick and it does the same thing. Knock him insensible and he is insensible because he has had a blow of some kind, because he is in an abnormal condition. A drug only makes a man insensible to his condition. If he is tired it does not rest him. You can give a man a dose of opium or a dose of bromid of potash and he will sleep and his consciousness may be rested somewhat but his brain and his body are not rested by such sleep. He gets very little good from it. An hour of good natural sleep is worth a whole night of drug sleep, probably more than that so you better stand a good deal of insomnia before you submit to being put to sleep by drugs but you don't need to send for a doctor and you don't need to lie awake. Get into a bath tub. Have the bath tub full of water at 92 to 95 degrees. Make it a little warmer at the start if you want to but not warm enough to feel warm. Keep it cool just the natural temperature. Get into that bath tub and stay there until you go to sleep. You may have to stay there three or four hours but by and by you will go to sleep and you will get a few hours sleep in that bath tub and you will find it the most delicious sleep you ever had in your life.

I didn't get the value of this bath impress~~ed~~ upon my mind very thoroughly until about twenty years ago. (Twenty years ago I was looking up some **serious** things in the history of hydrother~~apy~~ and I found one very curious thing. There was an old judge down in Jamaica that used to go on a spree. Every afternoon after he got off the bench he would go on a spree and get furiously drunk but the next morning he was already for business again. He had fixed up on the roof of his house a big wooden tub and he had that tub filled with water and when he got home after getting drunk he spent the whole night in that tub and in the morning he got up refreshed and completely rejuvenated and sobered up from his spree.) Now, I knew cold water would do some things for people in a spree because when I started a mission down at Chicago about twenty years ago, a clean up mission, I went to the Chief of police and told him I wanted him to show me the dirtiest and/^{the}wickedest place in all Chicago and I was going to see what water would do for that sort of folks. So I found ~~the~~ a basement on Custom House Place near Clark St., and I provided six bath tubs and two or three shower baths and a laundry and it wasn't two weeks before we were just overwhelmed with business. I put out a sign, "Free Baths", "Free Laundry!" The first customer was a young man who came in Saturday morning and brought in his/^{two}fine shirts and some collars and cuffs and he said, "I would like you-~~to~~ have these ready for me tomorrow morning early." We didn't get it done for him but this free laundry was a place where they could come in and wash their own clothes and they used to wash everything they had. They would wash even their overcoats, hats and boots. This was before there was such a thing as a free bath in Chicago. I had the honor to establish the first free bath in Chicago or any other western city that I knew anything about. I used to ~~send~~^{spend} every Sunday there and I did this for sever~~n~~ years. I counted 287 men one very cold November morning. They had a line that went clear ~~down~~ Custom House Place and around the corner on VanBuren Street waiting for a change to get in there to take a bath and to wash their clothes.

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and clean up. Well, we hadn't been going very long before I met a great many interesting -----sadd made a very interesting discovery. I once picked a poor fellow off the street that was in a most awful condition. He was dirty, filthy and as drunk as he could be. He was so drunk that he begged them to let him alone and let him lie in the gutter but they picked him up and dragged him in and put him into a shower bath, turned the hot water on for a moment, then the cold water as cold as it came from the pipe, from the lake and in less than three minutes that mansprang out of the bath into the hall and he shouted, "You have wrought a miracle. ~~Yenxxxxxxenxxxxxseberxxxx~~ I am a sober man" and he was so tickled he just dressed up and went out on the street and pretty soon he came in struggling and pulling a man down the stairs, a poor drunken fellow he had found and he came down. He was an Irishman and he shouted, "Where is the man what sobers them up? and he wanted this friend of his sobered up so he could get back to business the next day. You have heard of sailors falling overboard and getting sobered up all at once. There is wonderful power in this cold water as a tonic but I didn't know as I said what the neutral bath will do to cure a man from the affect of a spree until I read about the old judge in Jamaica. Whenever he want to some other town to hold court he didn't find the bath tub prepared for him. They were not so common in those days as they are now. It was over one hundred years ago so he used to use a pond or a ditch or a little stream of water /any place he could find it and he had his servant watch him but one night his servant went to sleep too so he was almost drowned so he stuck to his bath tub after that. He sleep so soundly in the bath tub that they had hard work to wake him up so finally someone adopted ~~the xxxxxxx~~ a device of letting the water run out of the tub and he took an awful cold so the poor fellow stopped the use of the baths and he declined pretty rapidly ~~xxxx~~ afterwards and pretty soon died. I said to myself, "If that bath has such power that it will save a man for forty years from the bad affect of liquor, save him from

can't make the rest of this out.

for that kind of intoxication as well so I adopted it and (it has been worth everything to me to know of the power of a neutral bath to rest the body and to cleanse the body and to remove the toxic properties which are generated by work.) Now, I am telling you this little story because I want you to remember what I am telling you. It will be such infinite value to you if you will remember it. If you cannot ----- to render your bath tub and (make it warm at the start, then cool it off a little until it is about 92 degrees. Be sure about it. ⁹⁶ 88 degrees won't do at all. It will wake you up and keep you awake. If you make it 97 degrees it will overheat your body and you will get uncomfortable, it will excite you and you will be less inclined to sleep than ever but it must be right in that little limit between 92 and 96 degrees and there are only four degrees limit and in that is wonderful power.) Take people when they are in that excited state and put them to sleep. All the up to date insane asylums are using it now for the patients who cannot sleep. I heard the superintendent of the Kalamazoo Insane Asylum tell this story after they had gotten the bath started down there. We send our nurses down there and have did this every year for many years to instruct their nurses in our Sanitarium methods. Some of the patients ran away and came up here and got well and that is the way it happens to come around and they got interested and then other institutions were interested to put it in. (A large institution in Philadelphia, a German institution was one of the first in this country to introduce hydrotherapy in the treatment of the insane and it has proven to be a wonderful boon to these institutions. I read a paper once before a medical society about the use of water, how it would put people to sleep and a doctor got up and ridiculed it, made all sorts of fun of it. "Why, the idea", he said, "we know that water is good and necessary for cleanliness but who ever heard of a bath putting people to sleep and how can any bath have any effect upon the brain" but he had hardly taken his seat when the superintendent of the Kalamazoo Insane Asylum arose and he said, "I can tell you an interesting experiment. Sometime ago we were taking some statistics at

the asylum as to the use of our hypnotic sleep producing drugs. He said, "We used to use a great deal of chloral. We bought it by the barrel we used to much of it and these barrels were all over the institution as decorations but he said we were taking some statistics, looking some things over and we find that at the present time we have three times as many patients as ^{we had 20} years ago and we use less chloral and other sleep-producing drugs in a whole year than at that time we used every week.) Think of that. With three times as many patients they used in a whole year less sleep producing drugs than 20 years ago we used in one week. That shows the change. (He said, "When a patient doesn't sleep we put a wet rag on him somewhere and he goes right off to sleep. Now, of course, that is something of an exaggeration. It has to be put on just right, that wet rag. The doctor referred particularly to the wet sheet pack which is another marvelous thing for putting people to sleep. Wrapping the whole body in a sheet wrung very dry out of cold water but it must be wrapped very tight about, then a dry warm blanket put around and wound just as tight as you wind the sheet, just as snug as it can be so that wet sheet is in contact with the skin everywhere and in five minutes there will be glow of warmth and in another five minutes the affect will be that of a poultice and all those sensations of nervousness will be soothed and quieted and the water will be soaked into the skin, soaked up and soak up those nerves so that they will be saturated with water and then they lose their sensibility. That is why the neutral bath is so very beneficial because the water soaks the nerves and shuts all the irritating influences that keep you awake. Sometimes the contact of some irritating surface keeps awake, sometimes the sleeping gown, sometimes just a little bit of noise of some kind that appeals to the nerves. In the neutral bath you have got the softest kind of bed clothes all around you, you see. It is softer than a bed of down and there is no extra accumulation of heat.) Sometimes you cannot sleep because the heat accumulates where you lie. All of

those things are cut off when you get into a neutral bath so the neutral bath affords really the most favorable condition possible for sleep. Now, that was quite a long question wasn't it? At least a long answer to a practical question but I hope that I have given you some things that will be of some use. Now we will try to find some short answers for these long questions. Please summarize the results of habitual corset wearing.

That is an awful subject to summarize. I think I will have to have a stereopticon to deal with that subject properly and I will bring out some pictures perhaps next Thursday night and explain to these gentlemen the terrible consequences of wearing tight belts, the awful effects of wearing tight belts and things of that kind.

Q. Is feebleness in women the result of corset wearing?

A. I will answer this question also when we have the lecture.

Q. What are remedial measures and rules of living indicated for asthma?

A. That is another question. Asthma is usually a toxic disease. It is usually due to poisons that ought to be carried off through the bowels but because the bowels are inactive the poisons are absorbed and thrown off through the lungs and that ^{great} sensitive surface becomes irritated to such a degree that thousands of the air tubes are produced and when the air tubes contract so they cannot get the air out the air cells in the lungs are filled up with air but the little tubes communicating with the air cells have muscular walls and these tubes contract so the air cannot get out. That is the trouble with asthma. A person can breathe in easily but he cannot breathe out. It takes them a long, long time to get the air out. It is very hard to get it out but easy to get it in. There is the difficulty so the thing to do is to adopt a mode of life and diet that will get the bowels into ~~into~~ an active state. Get rid of those poisons and drinking water is one of the best things. Sweating is another good thing that helps

to carry off the poisons. Asthma is nerarly always curable. It is only when it has gone so far that the lungs themselves have become diseased and that it is intractable and in those cases it can sometimes be greatly helped.

Q. The Vermont State Board of Health in one of its circulars states woolen clothing should always be worn next to the body. Please comment.

A. My comment would be if this is true in Vermont it is not true in Michigan. It may be true in Vermont. It may be necessary to wear woolen clothing next to the body in that climate but if one is going to wear woolen next to his skin all the time in Vermont I would never go to Vermont. I should certainly steer clear of Vermont because I should be very miserable. (A great many people whose skins are sensitive cannot endure woolen clothing. Personally, I never wear wool next to my skin at any time. I think cotton is better. There are several reasons. It is less irritating and another far more important reason is that while it is more absorbent than wool it takes up moisture and excretions more quickly. It also carries off the moisture more quickly and dries out more quickly. Woolens next to the skin retain the moisture and acts very much like a poultice upon the skin and irritates the skin and is likely to overheat it. I think it is much better to wear even in winter time thin cotton garments next to the skin with woolen garments over them. Even linen garments are not as good as cotton in my opinion.) Cotton is the best to wear next to the skin. Have as much wool outside as you want outside for warmth. Personally, I like cotton the whole year round.

Q. When a person eats no breakfast is it best to take a little fruit to or/eating nothing?

A. It is best to eat a lot of fruit. Take a good big square^{meal}/of fruit. It won't have much nourishment in it but there will be a larger amount of pulp and there is a good deal of pure water and some carbohydrates that will be very useful.

Q. Is there any cure for chronic nervous exhaustion?

A. Yes. It is only a symptom. It is not a disease at all. It is a symptom of chronic auto-intoxication. Get rid of the cause and the symptom disappears.

Q. What is the proper treatment and diet for dyspepsia?

A. A person suffering from flatulent dyspepsia may have difficulty in the stomach or in the colon. It means retention. If it is in the stomach that means the food stays in the stomach too long. If it is in the bowels it means remnants of food and decomposing material are in the colon too long. So the remedy is to unload the stomach or colon as the case may be.

Q. Where can a person buy ^{the} Sanitarium chairs?

A. If anybody wants Sanitarium chairs just send me a note about it, give me your name, how to reach you and I will try to find out where you can get them. I cannot tell you just this moment but I will see that your wants are supplied some way.

Q. Is the use of Yogurt and Malt Honey to be recommended for Colitis?

A. Yes. It is one of the most valuable remedies because colitis is due to certain putrefactive diseased germs that cannot grow in the presence of carbohydrates. It is chiefly maltose and dextrine which are ready to feed the friendly germs and they are extremely valuable in these cases. The Yogurt is a ferment of friendly germs and these friendly germs hook on such material as is found in Malt Honey. Milk sugar and malt sugar are the best foods for these friendly germs and they are excellent in colitis because they bring about an improved condition and an inhospitable condition for these diseased germs and ~~next~~ drives them out.

Q. What combination is best. Yogurt Tablets and Malt Honey Carmels or Yogurt buttermilk.

A. The Yogurt ferment tablets and the malt honey tablets or maltose

sweets are the best in general for some persons cannot digest the curds of milk and cannot digest milk and the milk decomposes in the colon and feeds the unfriendly germs. Such persons have to avoid milk while the tablets avoid this difficulty.

Q. Is olive oil fattening?

A. Yes, indeed it is very fattening.

Q. Would you recommend charcoal and sulphur tablets for colitis?

A. Sometimes they are useful but certainly are not a panacea nor a cureall.

Q. Would you advise operation for hemorrhoids of eight years standing and generally painful? Are sore most of the time.

A. Most assuredly. Trouble of that kind in that region of the body is very likely to become cancerous. If you are going to have cancer anywhere you will be likely to have it there. In any virulent irritation is really a very dangerous thing. Most cancers originate in something of that kind.

Stereopticon Lecture at the Battle Creek Sanitarium, Battle Creek, Michigan,

Thursday, April 25, 1912

at 8:00 P. M.

by

J. H. Kellogg, M. D.

~~Boys always enjoy hydrotherapy.~~ It is as natural for us to love water as it is for us to love air. We are more or less aquatic animals. We live under water. We do all of our thinking under water. Our food is all digested under water and the liver works under water and sometimes it is dirty water too, especially if you smoke, drink tea or coffee, eat pork, sausage and dead things of various sorts. Our brains are submerged in water. I think no one ever thought of that until Claude Bernard the great French physiologist wrote his book about American fishes and in that book ~~American fishes~~ he made this remark that all life is under water, ~~and when you stop to think of it you see it is true.~~ A man is simply a bag of water and various other things, colored water. Just stick a pin into ^{the skin} ~~a man~~ and ^{colored} the water spurts out. ~~It is really water under pressure. We are simply bagged and~~ In these bags made by our skin ~~there~~ are living creatures swimming about in the streams of water that are coursing through our arteries and veins, ~~through our blood cells.~~ ~~There are many different kinds of living creatures.~~ Every muscle ~~or~~ cell is a living creature. Every bone cell is a living creature. Every blood cell is a living creature and each one has its work to do. Go down to the seashore and you find in the water some little things that look like plants. You see perhaps some polyps growing out from stones. Sometimes in an old water trough you will find a little polyp in some stagnant pool that looks like a branch of a tree. These are animals nevertheless, though they look so much like plants. ~~Now~~ A muscle is like a polyp growing in a fixed place but every muscle fiber is a separate and distinct living creature by itself and the blood is simply a stream that brings the nourishment to this living creature and ^{also} ~~it~~ carries away the excreta.

Every living creature sees and eats and excretes and the blood carries in the food to feed these living cells. We are only individuals in the sense in which the community is an individual. It is made up of a great number of different living things. The blood carries along the nourishment so low these different members of the community and carries away excreta just as the garbage man comes around and the scavenger comes around and carries away the filth from our premises. When filth accumulates too much around ^a the place the people get sick. When filth accumulates around a cell the cell get sick. That is autointoxication. That is why some ^{people} of you have headaches, nervous headaches and nervous depression. That is why ^{one} you cannot sleep at night because the scavenger has not been doing its work well. That is what makes old age, ~~and that brings me to my subject. I am going to talk to you about old age. I should not say old age.~~ Rather, I should say long life, longevity.

On a ^{slide} slide in one of the halls of Westminster Abbey in London are to be seen these words:

"Here lies Thomas Parr, of the County of Ballak? born in 1483. He lived in the reign of ten princes, namely, King Edward Third, Fourth, Richard Third, Henry Seventh, Henry Eighth, Edward Sixth, Queen Mary, Queen Elizabeth, King James, King Charles, died, aged 152 years and was buried ~~here~~ November 16, 1635. ~~Now that is pretty nearly authentic, isn't it? I have read that myself. I stood in the aisle and looked down upon that slab or that stone that has been there all these years and underneath that slab or stone are the remains of this man who died at the age of 152 years and nine months and four days, almost one hundred and fifty-three years. Now that is a good long life and yet it is short compared with the lives of the old patriarchs. Some other people have lived to old age. We talk about longevity and we think when a person gets to be 60 years old he is getting old. I met a lady ~~and~~ the other day and she said, "Oh, well it is no use to do anything for me. I am so old." "Well, how old are you?" "Well, I am almost fifty-eight! Think of it, feeling old at fifty eight, imagining they are old, old at fifty-eight. One lady told me she was 92 years old. I think~~

3.

I told you about that the other day. She didn't like to own up to being so young. She was only 62 or 63 but she told me she was 92 because she knew she looked old and felt old and she didn't want ~~me~~ to think she was passing herself off for a younger person than she was, so she thought she would cover the whole period and call it ^{and call it} 92. I have the picture of old Parr. This famous old man and I was going to show it to you. This is the picture of his son, the son of Thomas Parr of Shropshire, a man who was born in 1483 and died in 1635 living through one century and away into the next one. He lived to so great an age that his son was called young ----- when he was past eighty years old.

Lecture April 25, 1912 continued from note book page 299.

Just here we are reminded of

~~That reminds me~~ of a story that ~~was~~ told in Ireland. A man called at a house and said he would like to see Mr. Smith. That was not the name, old Mr. Smith, "Are you the man". Mr. Smith was a ~~very~~ ^{seemingly} old man ~~and~~ with white hair and he said, "No I am not the man, it is my father you want to see." "Well how old are you?" "Oh, I am only seventy-five ~~So another~~

~~Elderly man~~ walking around to the garden another elderly man was observed at work there.

"Are you old Smith?" "Yes I am old Smith".

~~And~~ "How old are you?" "Well I am 130". "Well still you are ~~xxxx~~ out here at work".

"Yes", he said, "those boys of mine are rather feeble and I am trying to tend the garden for them so they will have something to eat". ~~That story is actually told. I don't know but there may be a little romance about it, but it is recorded.~~

~~There is~~ ^{that whom} another man it is claimed was older than old Parr, Henry Jenkins, died 1670 aged 169 years. He was born at Borton(?) upon Swale(?) in 1500 and followed the employment of fishing for 140 years. When eleven or twelve years old he was sent off with a horse load of arrows for the battle of Floddenfield, ~~That was the last battle that was fought with bows and arrows by civilized people, by English people and the Europeans.~~ And this boy when he was twelve years old was sent off with a horse load of arrows for the battle at Floddenfield to which the bigger boys went as soldiers under the ~~arrow~~ ^{earl} of Story to witness that tithes has been paid on a certain piece of land through which there was a roadway that passed a public highway or a path and the question was whether that should be maintained as a public highway or ~~xxxx~~ whether a certain man had a right to sell it and this man testified that he had been passing up and down that footpath through that field for over 140 years and there were a couple of very aged men one of them over 80 and the other nearly 90 so were brought into court as witnesses to verify this man's testimony and among the questions asked them was,

oldest

about this man. How old is Mr. Henry Jenkins? and one of them the man ~~that~~

90 years old said, "I don't know how old he is, but when I was a boy I remember he was a very old boy then". So this power to live is far beyond the modern estimate of it, but let us see some more of these old fellows. Here is John Rovin in the 172nd year of his age and Sarah, his wife in the 164th year of her age. That picture is authenticated. There may be some question as to whether those people were quite as old as they are thought to be but they look like very aged people and it is entirely possible they were away beyond the century and a half. Here is Margaret Patton, a famous woman who ~~is~~ ^{was} living at the age of 141 years and was then ^{at} St. Margaret West Minister Warehouse. Her maiden name was Gibson, born at Glasglow in the year 1596 in the reign of Queen Elizabeth. Here is Elizabeth Alexander 104 years of age. She was evidently getting her living begging so she had had her picture printed and was selling to people who were willing to buy them at 5 pence. It is rather an intelligent face and certainly looks fairly well preserved for a woman 105 years old. It is entirely possible. Here is the picture of William Walter, born near Red Chest in Lancashire in the year 1613 ~~or~~ and died in 1736. At the battle of Adge Hill he was in the royal service, wounded in the army and had two hroses shot under him. He lived from 1613 to 1736, one hundred and twenty-three years of age when he died. Here is another lady, Blanche Jeffreys who lived to the age of 117 years. Here is Matthew Champion born in 1682, came to England in 1688, died at Yarmouth in October 9, 1793, aged 111 years. This was published in 1794, so you see this document had somebody who was prepared to testify to it. Isabel R. Walker died is 1774, aged 112 years. Here is another old one Mother George in the 120 year of her age, traded and sold by John King at the Globe in Walter, London. Here is another old face, Patrick Gibson ¹¹¹ formerly of his majesty'r royal navy ~~now~~ now living in his ~~120~~th year. He looks pretty well preserved for so old a gentleman. Mary Ralphson aged 110 years. That is the way she looked over 100 years ago. Champion aged 111years. John Phillips aged 117 ~~born~~ in 1623 and died in 1742 so he must have been 115

years old when he died. Here is the champion of them all, Petraesz Zartan 185 years of age, died in 1724. That picture was made a long long time ago. This man lived to be older than the patriarch Abraham according to this record. Christian Jacobson who has a very striking countenance, boatswain in the ^{Danish} ~~British~~ Navy, born in Norway in 1626 and still living and in health at the unique age of 139 in Denmark where he walks about visiting country gentlemen in different parts of that country who are fond of seeing and conversing with a man so remarkable for his strength of faculties at such an advanced age of life. This was published according to active parliament July 9, 1765, so the picture itself is quite ~~an~~ antiquated for it was published nearly 150 years ago. That is a splendid picture of a gentleman who is over 100 years of age. I saw an account of his death published in the newspaper sent to one of his friends and they sent me his picture, one hundred and four years of age and he never used liquor or tobacco. Here is another old gentleman, a sentinarian who lived more than 100 years on a healthful, natural, un-stimulating diet. Here is an old gentleman I met in ~~Kax~~ San Francisco and had a chat with him when he was one hundred and nine years old. He is still living. He is a remarkable hardy man, has been a vegetarian for fifty years. This man studies law, had been a lawyer, studied in the office of Ben Butler in Boston and was a very bright active man the most of his life. This is the jaw I promised to show you tonight. The heidelberg jaw. This is the oldest relic of the human being that is known to exist on the face of the earth. This is the oldest that has ever been discovered. This jaw was found buried 17 feet in the ground in stratified earth or under earth that had accumulated by water deposits, one strata above another. It was found near Heidelberg, Germany. It was covered up with stratified earth of various kinds as though it had been deposited one after another by the processes of Nature, had been buried 75 feet in depth. It had not been buried ~~by~~ but had been buried up by these alternate submergings and emergings of the earth of the water in that region by the river. Notice what a massive ascending remus this is. It is twice as large as any modern height of jaw a jaw twice as thick. The chin is like the chin ~~xxxx~~ of a gorilla or

chimpanzee and all of the jaws that have been found dating from that period have this same characteristic, the retreating chin but please observe these wonderfully large teeth. The wisdom tooth is as large as the other teeth but it is nearly disappeared from the modern jaw. These teeth are all developed and well preserved. Not a single tooth shows ^{the slightest} evidence of decay. This jaw is twice as large and will weigh nearly twice as much as the natural jaw of any living man so the man himself must have been a very much larger being than the modern man. He must have been at least equal in size to the Irish giant and much more strongly built. Now why don't we live as these ancients lived a century and a half or a century and three quarters as in the case of Peter ----- for example. The reason is, ^{we destroy} we destroy ourselves, our lives. It was old ----- who was put to death by the order of Nero. It was old Seneca who said, "None does not die who kills himself." I never see a man smoking that I do not say that man is committing suicide. I never see a man taking a glass of liquor that I do not say, ^{if} that man could only be made to understand it he is destroying his life but he does not appreciate it. Now the man that drinks tea or coffee, the man that loads down his potato and everything else that he eats will suffer, people who go on day by day utterly disregarding the laws of health are just as certain^y to ~~commit~~ ^{slow} commit suicide by a ~~stupid~~ method. It is true but yet they are certainly taking their own lives as the man who sits down ^{in a room} with the windows closed and the key holes stopped up and lights a charcoal fire and destroys his life by asphyxiation ^{by} with carbonic acid gas. In fact, when we neglect ourselves to that extent, we shut ourselves up in our homes, ----- ourselves against the fresh air of the outdoors and breathe over and over again the same foul air. In doing that we are committing suicide by slow asphyxiation. It is just as certain in its results but comes a little slower. The direct reasons why our lives are short is because of the damage which comes as the result of our habits of life especially the damage to the blood. The blood is the life. The Bible says when a man receives permission ^{from} for the almighty to

eat the flesh of animals he is told he must not eat the blood because the blood is the life but the blood thereof which is the life thereof thou shalt not eat it. That is what Noah was told. Noah was told another thing by the way. He was told that he might eat any kind of animals that existed, every moving thing that liveth shall be meat for you. It was the order given him after the flood. There wasn't anything else to eat but the ----- says and the fear of you and the dread of you shall be upon every beast of the field and every fowl of the air and every living thing that moveth shall all be afraid of you. They were not afraid of him before that. When Noah ----- ready I suppose she went out and whistled and all the animals came marching into that ark in perfect order. We haven't any account of -----the animals entering the ark, of the lions eating up the lambs or anything of that sort. I have not a particle of doubt that men in those days ----- of all the animals that lived. I have read at least of some experience of some travellers who had found some island in the ocean where no man had ever been and the report has been that animals are not afraid of them. I think ----- mentioned that down at the South Pole where they landed on a shore where no man had ever been seen before that they found the penguins marching about in solemn fashion and these penguins were so tame that the men could walk up to them and pick them up. They were not at all afraid but these animals learned to be afraid after while. When they found that men wanted to eat them then they were afraid of course and they are afraid so God said to Noah that he might eat the animals but the fear of you and the dread of you shall be upon every living thing. Of course they were afraid of Noah after that because they were afraid he was going to eat them that he might seize upon them. Another thing he told them too, he said, "The blood of your lives will I require. At the hand of every beast will I require it." That is a very interesting statement. The blood of your lives will I require. At the hand of every beast will I require it. If you look up the original you will find the original of that word may be translated seek. That is one of its

meanings. Your blood will I seek. At the hand of every beast will I seek it. so you will see while man goes out to capture the beast there is another beast going to capture him but when a man pursues a sheep and cuts its throat and eats it there is a lion after the man trying to capture him and eat him so it simply came to be a matter of warsaid between man and animals and between animals and men. The blood is the life. By the way, the same command that was given to Noah, "The blood thereof which is the life thereof thou shalt not eat of it" was reiterated to the children of Israel, to Moses. It was a deadly blood sin to eat the blood of an animal. Why? Because the ~~animal~~ is alive. That was what Moses said, "Because the blood is alive," and there was a question^s put to the Apostles to men who were the disciples of Christ, the great teacher who had been teaching down at Galatia and other places and the question ----- was as to how far these laws laid upon the Hebrews were binding upon the followers of Christ, upon the Christians, how that they did not need to obey all those laws and Peter thought they ought to ~~obey~~ ^{observe} all of them and there was sort of a quarrel between them. They went to Jerusalem to have it settled and it was laid before the eleven apostles up there and they said the decision after several weeks deliberation changed the ~~brother~~ brother of Christ and the president of the council said, "It seemeth good to the Holy Ghost and to us to lay upon you only these four necessary things, to abstain from flesh offered ^{to} idols, to abstain from things and from blood. They must abstain from blood so there is a law laid down. Twenty-five or thirty years after the beginning of the christian dispensation this ~~law~~ law was laid down for all christians to follow and by the highest authority that has ever existed in the Christian Church the apostles of Christ laid it down as a law that these four necessary things were all the followers of Christ to abstain from things offered to idols, from ----- and from blood so the man that eats blood ----- is violating the law ~~and~~ of God just as much as the man who steals. He is violating the law that was laid down by all humanity given first in all to the representative of the whole race and reiterated to the

Hebrews who were the special chosen people ----- by the highest
authority in the Christian Church for all christians. That is, the blood must
be abstained from and from being strangled to. Why, from being strangled?
Because being strangled has the blood in them, don't you see. When an animal
is hitten in the head and ~~falls~~ ^{falls} down the blood stays in it. You can't get all
of the blood out. The ancient Hebrews were brought up to obey that law and
carried it out and the ----- to the present day are so particular
^{it} ^{law} about/being that ~~way~~ that the flesh before eating is soaked over night in salt
and all the blood is taken from it and then it is washed.

Lecture APRIL 25, 1912 continued from note book page 308.

I spoke to a young Hebrew sometime ago who parents were orthodox hebrews and were very conscientious and I was talking about meat eating and he said, "We don't eat much meat at our house". I said, "Why not, are you opposed to it." "Oh no", he said, "not that, but it doesn't have much taste to it and we don't care much for it". Now if you will take a piece of beefsteak and wash it thoroughly to get all the blood out of it and get the life out of it for the blood is the life, represents the life, if you will get all the blood out of it, you will find there isn't anything else left to it. We used to have laundered skirts here at the Sanitarium. The last countenance I gave to flesh eating in the institution here was the use of laundered steaks for certain classes of people and they were soaked in salt over night and the next morning were washed and washed thoroughly and then put through a clothes wringer and they were treated in this way until everything was squeezed out of them that could be washed out. Now there wasn't any pleasure in eating those beefsteaks. There wasn't any taste to them. There was no blood in them, you see and nobody wants to eat steaks of that sort because the thing people like when they eat beefsteak that makes them smack their lips that makes the mouth water is not the beefsteak itself at all. It is the blood in it, the dead blood, the uric acid the excretions the substances which by and by are dissolved out by the blood, carried to the kidneys and excreted ~~from~~ through the kidneys. Take that beef tea you are so very fond of analyze it, take it to the laboratory and it cannot be distinguished from urine by chemical analysis. It has the same chemical analysis as urine. An eminent chemist not very long ago confessed that the only way he could distinguish between urine and beef tea, chicken broth, the only way in the world was by the smell, by the sense of smell. He had no chemical tests that showed any difference between them. They are necessarily the same because the urine is made up of extracts of the tissues. The blood brings all these poisons to the kidneys and the kidneys are filtered out. Now this blood is the life as I have mentioned and I have been telling you about this incidentally just now to show you that the fact has been recognized from the earliest ages. Away back from Noah's time down

to Christ's time at least, the fact that the blood was the life of the body. In the same way the blood is the death of the body because when this blood becomes diluted, when this living extract that flows through the vessels and feeds all the tissues of the body and washes all the tissues, when that becomes diluted then it becomes an agent of death as well as of life and when this blood becomes deteriorated it is no longer an agent of high and vital life but it is an agent of a feeble life or a deteriorated life. It produced a feeble depreciated life. Now some of you wonder why it is that you don't get well faster. It is because your blood has been deteriorated, that is the fundamental reason. You wonder why you have got a breaking out on the skin that doesn't heal up, that ugly old sore. It is because your blood is deteriorated so it has not the power to do this healing work, but you say I had my blood examined and it was marked 95. Yes, but that is another story entirely. That only means the number of cells, you see. It does not tell anything about the quality of the blood but only as regards the number of red cells in it and these red cells have only one job to do, that is to carry oxygen to the different parts of the body, but they have nothing to do with the healing work. The healing work is performed by the white cells and it is the condition of these white cells and their work that controls great longevity or short life. The length of time we live depends upon the ability of our bodies to maintain clean and vital blood, that is the whole thing. Here are certain cells that fight against the bacteria. These cells fight germs that is their business. When germs get into the blood they fight them off. We found a while ago a lady that had been here for some little time. She had been living in the city for some little time. She had been having curious experiences, she had been having sudden black and blue lumps come on her skin and she seemed to be getting weaker and weaker and weaker and I investigated her case and I at once said, "We must examine your blood bacteriologically". If I had anything serious the matter with me that is one of the first things I would have done. I would have my blood examined bacteriologically. We did this for this lady and we found as I suspected infectious germs in her blood, germs of a character capable of producing deadly disease, pus forming germs, infectious

bacteria were found in her blood. These germs accounted for all of her troubles. Now the question is how to kill those germs. We cannot give her anything to kill those germs that wont kill these red cells and kill her because the germs are tougher. They have tremendous vitality. The only hope for her is to increase the number of her white blood cells, these germ destroying cells so they will be able to eat up the germs. That is the only way and that is what is necessary in the case of every one of you here. I presume there are a dozen people in this room that have germs in the blood. These germs are sometimes simply colon germs and the liver is taking them out all the time. It is part of the duty of the liver to take germs out and part of the duty of the kidneys is to get these germs out of the blood. A little while ago we examined the urinary excretion of a patient and found it full of colon germs. There was no appearance of anything there by colon germs and a further examination showed infection of the kidneys with those colon germs and a further examination showed the extent of the infection of the kidneys ~~with those germs~~ that those colon germs had been instrumental in producing, so it was a matter of tremendous importance and it is always a matter of tremendous importance to know this fact, that many of the mischiefs of the body are due to the action of germs which have gotten into the deteriorated blood. So long as the blood is vital and active these cells eat up the germs and they cannot make any mischief. By and by the germs accumulate when the cells become deteriorated and they produce ~~germs~~ disease in the heart and disease in the arteries and that produces old age. They wear out the liver and the kidneys and produce disease in the brain and the liver and that is the thing that shortens our lives. We ought to die as the one horse ~~chaise~~ chaise went to pieces and that is the way we ought to die but we don't die in that way. We die in the way that a chain breaks. A chain is as weak as its weakest link and when its weakest link breaks the whole chain is broken so if we have one link, it may be a weak heart, it may be weak kidneys, it may be a weak liver, perhaps a weak stomach, if that one link breaks, why if that one link is gone then we are gone. If one link gives out then the whole vital work is broken and the man dies. By proper care, by proper living we would not overwork our vital organs. The organs of the human body that

are most commonly overworked are the kidneys and the liver. Over eating over works the liver. Large quantities of meat, a great deal of sugar, fat, tea, coffee and things of that sort enormously overwork the liver and alcohol and tobacco overwork the kidneys and the liver as well so Bright's disease is growing rapidly among us. It has increased from one-hundred percent to two hundred and thirty-one percent in thirty years which is a terrible increase and other chronic diseases are increasing at just the same rate. Now there is another thing, when the blood becomes deteriorated, these scavenger cells take on a new action. These large white cells have for their duty to pick up and destroy, eat up the debris of the body. They are like the scavenger, the animal that goes around the street. Sometime ago I saw a notice in the paper of a new proposition, the Women's Club has proposed. Certain streets in a city were very very dirty and the ladies had tried hard to get these streets cleaned up but they could not. All sorts of rubbish was lying about the streets, so these ladies proposed to the city alderman of Chicago that they would buy a couple of shoats and turn them into the streets to be the public hog and they expected these hogs would wonder up and down the streets and eat up this rubbish and they promised that if they alderman would permit them to do this that when the hogs were fat they would turn the hogs over to the alderman of that ward so that the alderman of the ward in which the hogs lived should have the pleasure of eating the fat hogs. In other words they were going to dispose of their garbage by feeding it to the alderman second hand. Whether the plan was adopted or not, I don't know, but the body is provided with scavengers that have for their duty to go up and down the hyways of the body the arteries and the capillaries and the lymphatics and hunt up the debris, the rubbish, all the filth of the body that the body cannot dispose of in any other way, the solid particles, eat them up and destroy them and they sometimes pick them up and carry them away bodily as you see men going around gathering up garbage at your back door and carrying it off to a cart, so these creatures actually carry it off. They load themselves up with it and then they march off way down to the spleen. The spleen is a sort of crematory where this sort of rubbish is consumed.

The spleen is a kind of cemetery where this part of is is consumed. This is a very interesting thing when you get down to the minute physiology of the body. It is a most fascinating study in the range of human knowledge

Dictation on record was too fast to be gotten off.

cells make a mistake. They apparently take on a new instinct or are misled in some way and seize upon the body itself, upon the vital tissues. The brain cells and the liver cells and the kidneys cells, they are doing this wonderful work. These various organs, even the walls of the blood vessels are taxed. These cells encroach upon them and steal away their vitality. This is one of the most interesting facts in human physiology as I was saying a moment ago. It was worked out by Metchnikoff. This shows some normal blood cells. Here are the germ destroying cells and these are the big scavenger cells here. These germs destroying cells you see here find their way outside the blood vessels, get out in among the tissues ~~and~~ touch with these germs, eat them up and then away they go down to the spleen and down in the spleen they are caught by the spleen cells and the germs and all are eaten up and destroyed. This shows one of these cells undergoing degeneration. They seem to become crazy under the influence of the deterioration of the blood. Poisons inhaled from a pipe or a cigarette or cigar or poisons that have been swallowed from the teacup or that have been inbibed and absorbed from the colon where putrefaction is going on, any of these poisons have the effect to deteriorate these cells. That is why constipation is such a terrible thing. One of the worst things that happen to the human body is to have inactive bowels, one of the most prolific causes of disease. The blood vessels under the influence of this disease become deteriorated and lose their normal functions and as I was remarking before seize upon the body itself, set up degenerative processes in the vital organs. Here are some of these cells running up into the hair and stealing away the pigment or the coloring matter in the hair, then you get gray hair. That is the way we get gray. It is through the action of

these cells. Here they are forming into the muscle fiber and they carry off all these vital elements so they can no longer perform their function. That is what happens to a pugilist under the influence of too much whiskey and beefsteak. That is why he deteriorates and doesn't know it. That is why Fitz Simmons got beaten a few years ago and Johnson got the best of him. He had been keeping a saloon and drinking whiskey and his nerves were damaged to such a degree they could not respond to the stimulus of his will. Here is a kidney that has been invaded by these destroying cells and here these destroyers are operating on a brain cell, eating it up. That is why the old man loses his memory and why the neurasthenic does not have his wits about it as he ought to have and the self-control, because his cells are poisoned. Here are the same white cells of the blood as we find them damaged in pernicious anemia and here are some of these neuronophags or scavenger cells eating up nerves. These are nerve cells and here are brain cells. Here are a lot of these cells ready to attack the brain cell and destroy it. They invade the liver also. You see here a normal liver. That is the shape of a normal liver. Here is a liver showing the gall bladder underneath. Here are the blood vessels. Here is the large vein that brings the blood into the liver to be purified and here is the vein that carries it up to the ascending vena cava which carries the blood up to the heart after it has been purified. Here is the gall bladder and because of the infection which takes place through the blood, the liver undertakes to strain out these cells and it becomes the worst seat of these destructive processes. So in many cases the liver is diseased before any other organ is. I had to operate the other day upon a patient whose gall bladder and liver had become diseased so we were getting sugar in the blood and sugar in the urine and albumin in the urine and a diseased condition of his gall bladder, so I had to perform an operation and remove his gall bladder. It all comes about through this infection of the colon I have been telling you about and the dreadful habits that result can hardly be described by words. Here is a healthy liver and here are some healthy liver cells that take out the poisonous elements from the blood. When germs get out into the liver here, the liver becomes diseased and degeneration takes

place. This shows the process taking place. Here are the cells of a normal liver. This is a liver that is congested and infected by disease. This is the same liver undergoing degeneracy. You see those glistening white droplets of fat which are taking the place of the normal cells and fat, of course, is inactive in the body as out of the body. It is simply taking the place of the living tissue, so the liver becomes by and by a mass of fat. After while you get a liver looking that. We can feel through the patients abdominal wall when it is relaxed and feel these nodules on the liver. Now we have the X-ray by means of which we are often able to see the liver, to mark its outline over the chest. Here are various kinds of livers, cirrhosis of the liver. Here is a nutmeg liver. Here is an inflamed liver, a cancerous liver, a hob nailed liver. These are all different forms of liver disease that result from this deteriorating process. It is a part of the duty of the liver to take out poisons from the body and a part of the duty of the pancreas to produce substances that help to burn up the waste matters of the body and the sugar. When this organ becomes diseased from overwork, this process of burning up does not take place and a person gets diabetes. Here is a little duct here that ~~carries away the secretion from the liver~~ carries away the secretion from the liver. This is the duct from the pancreas that carries away its secretion and it goes down to the intestine here. When the intestine becomes the seat of these abnormal parasites and germs, the infection extends up to the duodenum and it sends up these little ducts into the pancreas so the pancreas becomes infected and they follow up this duct to the liver and the liver becomes infected and then the gall bladder becomes infected and gall stones are produced and cysts are formed, inflammation takes places, then comes diabetes and other forms of disease which grow out of this condition of the pancreas. Here in the kidney with its little cap on, the super renal ~~supra renal~~ supra renal capsule which makes the adrelin which destroys coloring matter which is produced in the colon. This brownish coloring matter produced there is absorbed when there is autointoxication and it is the duty of this organ here to destroy these coloring matters, but when it gets over worked and worn out it cannot destroy all the coloring matter

that is taken in. ~~It is~~ There is an excess ~~of~~ accumulated in the blood, then it is deposited in the skin and you get brown circles around the eyes, the skin loses its bloom of health and you get brown spots on your hands. You get so-called liver spots and you feel that your brain is clouded and the sclerotic of the eye loses its brilliant glistening white color and it becomes dingy and you get a bad taste in your mouth, a metallic taste in your mouth as the result of the poisoning of your body with these poisons. This shows how the kidney becomes diseased. Here is where the blood is brought down to the kidney. The red shows the healthy blood and as it is passed out here it is under pressure and the watery part of the blood passes out by osmosis into the ducts and the carried out and with it are carried off certain poisons. In hardening of the arteries these arteries become hard, small, shriveled up so that the blood cannot get through so the kidneys cannot do their work and that is what happens to a person with Bright's disease. This is one of the results of deteriorated blood. Here are some samples of diseased kidneys, showing a cirrhotic kidney, an inflamed kidney, a hard kidney. These certainly come sooner or later as the result of chronic poisoning. We get the same results from chronic lead poisoning. A person drinking water that runs through a lead pipe gets lead poisoning. This shows the hardening process taking place. The cells being destroyed and the hard indurated cicatricial tissue taking the place of the normal healthy tissue. Here is another picture of diseased kidneys. Here is the thyroid gland which has something to do with this. I met a man to day, when I examined him I found his skin was just like parchment. When I took hold of it, it wrinkled like parchment, like thin paper that has been polished, a little stiff. It was all wrinkled up all over, thin and almost transparent. Now that was evidence to me that this man's thyroid gland had undergone deterioration because it is the duty of the thyroid gland to keep the skin active and it has charge of the functions of the skin and when this gland deteriorates, then the skin deteriorates and that is what makes the skin thin and wrinkled and skiny in an old person. The thyroid gland destroys poisons as well and it helps the kidneys to eliminate the poisons or helpsto burn up the poisons of the body. So when this gland is degenerated, the body is

destroying poisons and the arteries get hard and old age comes on. This old age affects the arteries of the heart as well as other parts of the body and when these arteries of the heart get hard so that the heart can no longer get the necessary supply of blood to keep up its energy and keep working as a pump and then the heart itself degenerates, then old age comes on rapidly. That is why the old man cannot run. It is because his heart is deteriorated and that is a symptom you should take note of. When he finds himself getting out of breath he should be exceeding careful not to over exert himself or some day he will drop down all of a sudden because of heart failure. This shows the influence of food. A normal low-protein diet produces good red blood. A high-protein diet produces deteriorated blood. The blood of a person who eats too much meat becomes after awhile deteriorated because the meat feeds certain germs in his intestine which manufacture poisons which when absorbed into the blood dissolve and destroy the blood.

Stereopticon Lecture. April 25, 1912.

Hemalatic ----- are produced by these germs especially ---- bacillus and other things which have been pointed out by Herter to be capable of doing this mischievous work. The deteriorated blood going through the arteries causes thickening of the walls and by and by the heart is not able to keep up the work necessary to force the blood through the small arteries and the blood pressure gets higher and higher and the heart by and by fails to keep ^{up} the work. Then the blood pressure falls. Then there is a funeral. This show the arteries are beginning to be hardened. This shows then a little further advanced. In performing operations I have some times run across such arteries and in cutting off the leg one time in which the arteries ~~was~~ had got too small that the foot had died in cutting the arteries I thought I had struck a stone and I had. The artery itself was just like a piece of stone. ~~The artery itself was just~~ Its walls had become so hard that they had almost entirely disappeared. These conditions of degeneracy are increasing in every civilized land at an enormous rate. This shows what has happened in the last thirty years in persons forty years of age. Mortality has increased thirty-five per cent. It has increased 22 per cent in persons fifty years of age and 24 per cent in persons sixty to seventy years of age. These ~~is~~ statistics were prepared by Dr. Rittenhouse at the present time in charge of the Health Department of the Equitable Life Assurance Society. He is a man who has given a great deal of ~~time~~ ^{attention} to this subject, and has made a careful study of the subject and knows what he is talking about. This shows how chronic disease of every sort, heart disease, cancer, apoplexy, sorosis of the liver, diabetes, congenital debility, these conditions of degeneracy are all increasing at a very rapid rate. ~~XXXXXXXXXXXXXXXXXXXX~~ Now here is a picture of a man, Louis Cornero who lived to be 100 years of age and that is a copy of the portrait made of him when he was 100 years of age. This was after a printing by Titian the great artist. He is still a rather youthful looking man, isn't he at 100 years of age? Yet at forty he was a broken down man

He had paid no attention to the care of his health and found himself broken down a complete wreck and he reformed and from that time on lived an abstemious, careful life, cultivating health in every way possible and he improved and improved and improved until at eighty years of age he could leap fences and engage in all kinds of athletic activities and when he was 100 he was still erect, straight and nimble and a splendid figure. Here is another man, Leonideldavanci, one of the greatest artists who ever lived. You see by his wonderful faith that he must have been a man of great ~~wonderful~~ intelligence. This picture of him was made when he quite along in years and yet he looks like a youthful man. Leonardo da Vinci was a strict abstainer from flesh and he owed his wonderful vigor to his abstemious habits of life. He used to entertain his visitors by swinging from the floor and protecting the chandelier with his foot. He was a man of such great vigor and agility that he could do such a feat as this. When he passed by a butchershop he always turned his face the other way and spoke with great vehemence of the horrors of slaughtering animals and the horrible practice of eating flesh. He would not have anybody about him that was in sympathy with the common practice of flesh eating. He was a strict abstainer from flesh and ~~although~~ ~~abstainer~~ from flesh and -----/ He was a feeble broken down man in his years by the adoption of simple abstemious habits of living and the process of abstaining from flesh which he -----abstained from for about forty years he was able to prolong his life and activities. Probably very few men ~~was~~ lived in modern times who have influence of self and opinions as so large a number of men -----

The story got out that he had become a flesh eater so a letter was sent to him by our Good Health Office asking him upon this question, whether he had returned to flesh-eating again and this is the letter I received in answer. "My Dear Sir: My father,----- wishes me to write and tell you that he is very thankful to you for sending him Good Health for several years. He cannot say that he reads it through every month but he wishes you to know that very often he looks it through and what he sees of it pleases him very much. He is a strict vegetarian himself as well as a great enemy of all sorts of medicine and therefore

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the ways by which Good Health advises to cure and prevent illness is very sympathetic to him. For myself, I must say that I have profited ^{very much} /from Good Health. I have a two years old baby though I have ~~studied~~ studied your mothers' number very carefully. Yours Truly,"

Born Polsti, November 16, 1907.

So then Polsti was still a vegetarian and I understand he retained this practice up to the very time of his death and unquestionably prolonged his life by doing so. I had the pleasure of meeting his son, Leo Risti in St. Petersburg some four years ago and learned much from him of his father's habits. He told me he was a ^{very} rigorous vegetarian. Now the reason why this is a ~~very~~ question of so great importance is because the flesh of animals like our own is filled with these impurities. An animal is a mechanism for using foods and not for making foods. The body is a machine that uses the pure products of the earth that has been gathered by mother nature for the use of all animal flesh. Animals are users of energy while the vegetable gathers the energy from the sunshine and in the order of Nature one animal should not eat another animal any more than you would feed a furnace with kerosene lamps or big stoves or little stoves or a big engine with a little engine. The body is a means of consuming and using energy so if we want to get all the energy there is in foods we ~~want to~~ ^{must} get it at first hand ^{at} instead of second hand and when we eat the pure products of the earth, fruits of various sorts and vegetables of various kinds we get food in its absolute purity ~~and~~ ^{in an} absolutely ----- condition. But says one, when food has been eaten by an animal and has been used by it does not the fact that our flesh is nearly like the flesh of animals show that ~~the~~ flesh food is better for us because the animal takes these crude foods and transforms them into flesh much like our own and so prepared them for our use so refines the crude products of nature and prepares them for our use. Now I think this is just the same question as this exactly. A man has to build a fine house so he looks around to find another house somewhat like the house he wants to build and proceeds to buy that house and has it ~~tonn~~ down and uses the material found in that

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house to build the new house. If you were going to build a house is that the way you would do it? No. You would build it of the wood as for the timber and get timber that ~~was~~ never/been used/and get the stones from the field that had never been used for a house and the iron that had been made into nails and the beams/put into your house material that had never been used before. You would not want second hand windows and doors, second hand timbers and second hand bricks. You would have a very imperfect kind of house made in that way. The fact that things had been used before does not prepare them to be used again but rather deteriorates them because it takes something out of them. That is exactly when an animal eats corn. When the pig eats corn and rolls it around in the mud for six months and you take the pig and eat the pig in the form of sausage or ham you are getting deteriorated food. You are getting second hand food that has been used once before, and it is like wearing a second hand coat. Now we want our blood to be clean, our bodies to pure and sweet and clean like the living and not like the dead. If we want to live out our lives/as the flowers do we must adhere to nature's laws and follow her exact ways and teachings and avoid the artificial ways we have learned which cultivate degeneracy instead of cultivating life. I wish that we may all live 100 years.

I thank you for your attention.

End of this lecture.

Feb. 20, 1913/ 27

Question Box Lecture Cont.--from note book page 292.
April 22, 1912.

Every one of them is a thief. When one gets ----- from tobacco it is something he has stolen. He has robbed. Not simply he has robbed himself but he has robbed his children. He has robbed the race, he has robbed his posterity if he has any, of something that belong^s to them. He hasn't any right to that kind of ---- so we don't want any such-----

Q. Please tell us something about colitis. Colitis and its effects.

A. It is an infection of the colon. The symptoms are almost every kind of wretchedness and misery a person can possibly experience. Headaches and nervous exhaustion, so-called neurasthenia and the general debility, staining of the skin, spots on the skin are all symptoms of autointoxication. They all go with colitis.

Q. What would be the result of the continued use of bromo seltzer for the headache?

A. The result is it will kill you. Nineteen years ago I met a prominent lady doctor in Chicago the late Dr. Sarah Hackett Stephenson. I happened to meet her. She found a poor young woman in the city who was in trouble and brought her to me to see if I could help this young woman out of her difficulty. The doctor came to see me and that is the way we first met. We find we ----- interest in the world in helping other people so we became very good friends and I knew her very well till her death. Dr. Stephenson said, "~~why don't you do something~~" said to me one day, "Oh, I have got such a terrible headache." Well, I said, why don't you do something. Well, she said, "I have just had a big dose of bromo seltzer and I have it every day" and she ϕ told me other things she had done that were very wicked things to do. I don't mean morphes or any things of that sort. I think she said she had got to taking antikamnia. I said, "Do you take coffee?" "Oh, yes, I take a very strong cup of coffee every morning and several cups during the day."

2.

I said, "Doctor let me feel your pulse." I said to her, "Doctor the first thing you know you will be having high blood pressure. The thing is beginning already now. You will have hardening of the arteries" "Oh!" but she said, "I have got to go on with my work!" Three/^{years}later she came on up here and said, "I don't know but you are right about this thing!" I came up here to see if you can help me stop that coffee and do something for those awful headaches of mine. She spent two ~~on~~ three weeks, felt a little better and then went back to her work. She was really the main spirit of the Womens' Club in Chicago and ~~in~~ she is a very enterprising woman and was interested in the property. About ten years later she came back again. This time she was really ill. Her blood pressure was way up. I said, "Doctor do stop that coffee and stop that bromo seltzer." "Oh!" she said, "I can't get along without them." She spent two or three weeks with us and then went to the seashore and then went back to Chicago. I knew what was impending. I warned her about it. A few weeks later I saw an account in the paper that Dr. Sarah Hackett Stephenson had been picked up in the street, as an intoxicated woman. She had fallen and hit her head against a lamp post and had a stroke of apoplexy. She was taken to the police station and some of her friends recognized her. Then she was taken to the hospital and that was the end of her career. She spent several months with us nearly a year afterwards with one side ~~nearly~~ completely paralyzed. She gradually improved a little; got on her feet so she could walk with a crutch but this disease kept right on. Of course, she stopped her coffee ~~then~~ but it had got started and kept right on and involved the brain, destroyed the brain cells and took away her mind and the poor woman died two or three years later a complete wreck, and she might just as well ^{have} been alive today an active useful woman just as well as not. She was simply killed by bromo seltzer. Now, I am justified in telling you that bromo seltzer kills people. It is a poisonous thing that will damage the heart and damage the liver and damage the kidneys and damage the brain and nerves and the blood vessels.

2. What is the value of a fecal test for a normal person?

A. Well the value of a fecal test for a normal person would be to show him how abnormal he is. Professor Distaso is first assistant to Metchnikoff of the Pasteur Institute and now the head of the Bacteriological Department of the Royal Institute of Public Health of London in a paper published a very short time ago in the German journal devoted to bacteriology the most authoritative journal in the world makes this statement. He sent me a copy of this paper and I was translating it just the other day and so I have it fresh in mind. He makes this statement. Examination of the intestinal bacteria of the so-called normal healthy man shows that the bacteria in his intestine are exactly the same as those of the decayed flesh(?) that they represent the bacteria which are found always everywhere in the first stage of putrefaction and in the case of constipated people the bacteria are those that are found in the second stage of putrefaction and every man who is suffering from an inactive state of ^{the} bowels is suffering from autointoxication and worse than that, he said that among civilized people everybody is suffering more or less from autointoxication and it is only a question of how they can stand it. That is why human life is shortening all the time. That is why chronic disease is increasing all the time. It is because every civilized nation is in a state of chronic intestinal autointoxication. Dr. Distaso himself is so thoroughly convinced of the truth of this that he himself has stopped the use of flesh foods entirely and his family does not use them and the same is true of ----- and of several very prominent other bacteriologists who have been making a study of this subject and who are not members of any vegetarian society, who have not any way been influenced by the Battle Creek Sanitarium or by me but by their own researches and investigations they have been led to the opinion that a flesh diet is a pernicious thing and a thing to be avoided.

Q. In what form is radium used here?

A. In several forms. By inhalation, in solution, drinking, in baths and by ionization the methods I explained a little while ago.

Q. What is the best diet and treatment for^a hepatic liver.

A. All the liver are hepatic. That is, hepatic means pertaining to the liver. I suppose a person means a congested or inactive liver. That means simply an overworked or tired^{out} liver and the thing to do is to give it a rest. Turn it out to ----- Live on a Sanitarium diet. Cut off all meats and most fats. Do not eat much salt. Drink a good deal of water. Take great pains to chew well and above all things make the bowels move three or four times a day to get rid of all the poisons in the liver just as easy and quick as possible.

Q. Is sauer kraut healthful?

A. It is better than no fresh vegetable. It is not the very best kind fresh of vegetable. It compares just about as the contents of a swallow compares with fresh meadow grass. You better eat sauer kraut than to eat no fresh vegetables at all, but when when you can get things fresh get nice fresh lettuce and cucumbers and things of that kind. They are certainly very much superior to sauer kraut.

Q. Is it sanitary and healthful to cook food in uncovered dishes?

A. No indeed. If there are flies or dust around and there generally are, especially in the summer time. It is very unsanitary and unhealthful.

Q. Which is best for one who has a high blood pressure. A warm or a cold climate?

A. The cold climate is better provided you keep warm. One does not need to be cold in a cold climate because the breathing of the cold air is a very great advantage in a case of high blood pressure because it supplies to the body^{with} oxygen and helps to bring off poisons. A warm climate has a depressing affect upon the heart to. This is a disadvantage to persons suffering from high blood pressure.

Q. What makes a person extremely sensitive to catching cold?

5. What is the cause?

A. It is simply low resistance. A cold is simply a condition of the body in which it has collected its own poisons and these poisons have not been properly eliminated. The thing that is necessary for this person is to increase the quantity of the activity of the skin and build up the vital resistance by an outdoor life by exposure of the skin to light and air and by contact with cold water.

Q. Of what benefit to the body are salt and peroxide in water used in enemas?

A. Sometimes salt is beneficial especially in colitis. A small amount of salt about a tablespoonful of salt in a gallon of water is an advantage in colitis because of the raw surfaces and water with a little salt in it is less irritating to the raw surface than water without the salt.

Q. If one cannot afford to continue the use of Para-Lax and Colax is there no other way of keeping up the necessary activity of the bowels?

A. Colax is simply a convenient form of cellulose and bran is a very good substitute for persons who can use bran and often bran answers the purpose. It does not always answer the purpose but it is very good. Bran or laxative biscuit or bran biscuit as they are called. Scotch brose is another thing. Equal parts of oatmeal and bran make a breakfast food which is particularly good for the bowels. Cracked wheat with bran and cornmeal with bran are also very good. Olive oil is useful as a substitute for Para-Lax but it costs about as much as Para-Lax. The use of fats is to some people advantageous when there is considerable acid formed. In cases that need lubrication there is nothing I know of that is quite so good as this mineral oil because it is absolutely neutral. It acts so thoroughly, so mechanically so proves to be a very useful thing. It is really one of the most useful things we have ever secured here. The best way is to get the abdominal walls strengthened and get the bowels so well trained that they will not require any of these accessories at all. For a person whose

bowels are badly crippled we will have to be at some extent and trouble to get along with them at least until they get the bowels trained into proper habits. I think I have reached the bottom of the box. I thank you very much for your patient attention.

End of this lecture.

v-11

