(The Muscles)

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by

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The muscles are the humble servants of the body. The bones are levers upon which the muscles act in moving us about to perform various bodily movements. The human hand is one of the most marvelous of all created things. Without the hand the human brain could never have attained the development it has reached. The muscles are something more than mere machines for creating motion. They constitute half of the weight of the body. They are the largest mass of the living substance of the body. They are capable of containing one half of all of the blood of the body. When a muscle is idle it contains but a very small amount of blood. When a muscle is active, at work, the amount of blood passing through it may be ten times as great. It is from six to ten times as great as when it is at rest so you see that the muscle may become a reservoir of blood. A sedentary person you can readily see has not his blood in his muscles. The muscles are quiescent. They are not active. They contain very little blood but the bood must be somewhere. When a person is exercising vigorously the skin is made to grow and one perspires. There is more blood in the skin because there is more blood in the muscles underlying the skin. The skin is capable of holding two-third of all the blood in the body. When a person is idle there is very little blood in the skin and in the muscle. Where is the blood. The blood which is not in the skin and is not in the muscles but ought to be in the skin and the muscles is accumulated in the center of the body, in the brain and in the spinal cord, in the liver particularly and in this great

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reservoir for blood, the portal circulation. The large muscles of the abdomen are capable of holding all the blood of the body. In this great reservoir the blood is collected while a person is idle, when a person is quiet and in a person leading a sedentary life so you see then, when a person is leading a sedentary life habitually, who never takes nor never takes daily a proper amount of vigorous exercise, his blood is all the time in excess, in the liver, in the spleen, in the stomach, in all these internal organs and it is no wonder they become diseased. This great excess of blood causes changes. Now all of you have some time encountered that familiar flower which one often meets upon the street, a rum blossom. Now why does it happen that the drunkard has a rum blossom on his nose? Why does he have this enormous great red nose? Simply because the alcohol paralyzes the blood vessels of his face, especially of the nose and as a result the nose contains more blood than it ought to have and it flows too fast for the rest of the body. Now suppose you have there two pots each containing a plant and one you water abundantly, the other you give very little water. What would be the natural results? You see at once the natural results would be one would grow much more rapidly than the other. The plant that is properly watered will grow rapidly and the plant that is not will is dwarfed and stunted. Any of you feel of your muscles and you find them flabby. It is exactly as it is with the plant. The muscles are flabby because they are starved. They contain too little blood. They are starved. There is not blood enough to build the muscle and the only way in the world the muscles can be made to work is to cause them to contract and to set them at work. The only way you can get more blood to make them grow is by making them work. Then Nature will send in six to ten times as much blood as ordinaryly flows through them but there is another thing to be thought about. While you have these very feeble and

depreciated muscles, these organs that are within the body have too much blood and some of the-m are big and over-grown. The liver, for example, a most common thing with people who live sedentary lives is to find a large liver. Now if we
5441 apply percussion over the liver we find that the liver doesnot sound like the lungs at all. The lungs are filled with air. By percussion around the region of the liver we can tell how large the liver is. The liver ought to be about as large as a hand but in sedentary people we sometimes find it ~~still-bigger~~ two or three times as large as it ought to be because the liver is enlarged. Gom into the X-ray room and have an examination of the liver made and we find the liver filling a large part of the abdominal cavity, perhaps. In once case the examination showed almost nothing in the abdominal cavity but liver. A postmorten examination in that case showed a liver that weighed 28 pounds, one quarter of the body's total weight. The liver normally weighs three pounds and a half so here was a liver eight times as big as it ought to be. How did it become to be so large? It had too much blood in it so if one is/habitually in a condition in which these large internal organs are overwhelmed with the blood the necessary consequence is a diseased condition that must result from this surcharged blood just as a drunkard gets a ~~[illegible]~~ hypertrophied nose, a rum blossom so the sedentary person gets a a hypertrophied liver. He very likely gets something more than that. He gets to be a hypochandriac and that is a very wise word. The ancients gave the state of mind we call hypochandria, melancholia, pessism, that ancients names that condition hypochandria. Hypo is the beneath you know and chandrian is ribs so hypochandrian means down under the ribs. We say down in the mouth you know but the ancients said down under the ribs and that is a great deal more reasonable, isn't it? They thought that the ------ was black or something so they said a man who had the blues was down under the ribs. Well, that was very reasonable and the reason is that the liver is diseased and has become inefficient. It cannot do its wonderful work of purifying the blood, destroying poisons and making enzymes, and subtle chemical substances to protect the body and to carry on

various metabolic processes to protect the body. The liver is the busiest organ in the whole body. It has the greatest versatility of function of any organ that is known to mankind. There is no organ that does so many different things as that very plain and homely organ we call the liver and it is so much abused. So many people complain about the liver. A patient goes to a doctor and says, "Doctor won't you give me something to whip up my liver? Oh, I have got such a torpid liver, such a lazy liver." I have known people who have got so out of sorts with the liver that they wanted tt to be removed. I have known people to go so far as to take liver pills, for instance, and insult the liver with doses of calomel and other things to whip it up ~~in order to~~ when the liver is already doing four times as much work as any decent person ought to ask a liver to do. The most common reason of the overwork of the liver is scavenger duty. Now a turkey buzzard has an enormous great liver, five times a big as a human liver in proportion to the size of the body because it has to do such an enormous amount of work. The turkey~~s~~ buzzard's diet is of such a character it has to have an enormous liver to destroy the poisons and to deal with that kind of a dietary. When a man sits down at the table and allows himself to be served with a turkey buzzard's diet don't you see, he is going to get into trouble because he has not got a turkey buzzard's liver to take care of it. When a man has a liver that is adapted to apples, pears, plums, cherries, nuts, green corn and delicious things of that kind and delicate things that are absolutely free from poison, the ambrosia of the Gods, the sweet and delicous products of the earth, the very finest, when a man is intended to live upon that sort of diet and has a liver adapted to that sort of diet, for him to set that liver to doing the scavenger business of the turkey buzzard eating corn beef, apples and turkey and goose that has a gamy flavor, pâté de foié gras', deviled crabs, when one abuses his liver in that sort of way he is certain to have very early a diseased and crippled and perhaps an absolutely spoiled liver, especially if he lives a sedentary life.

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Now let us look at a few of these muscles and see something of the wonderful machinery of the body. Look at these great muscles that form the abdominal wall and these splendid muscles that move the ribs. Now observe the muscles that move the ribs, the great latissimus dorsi muscles. These great muscles of respiration are attached to the lower part of the sides of the chest and there are just a few muscles at the top of the chest. They run up to the head in the neck and that is the reason why when you tell a lady to take a deep breath this is the way she always does it by raising her shoulders. She cannot take it in any other way because these muscles down here are all tied up so they cannot move but the muscles up at the top they are free and I suppose that is the reason why they dislike to have their dress loose around this part of the body so there will be plenty of room to breathe. Now please get that fixed in your mind. Here are some more muscles of the abdominal wall. Here is one of the large recti muscles. These splendid muscles that furnish the lid of the trunk of the body. Now when a person sits down all doubled up as most of you are sitting this very minute in a chair, all doubled up with the back humped lying in the hollow of the chair, in this sort of fashion, when a person does this see what happens. The breast bone here and the pubic bone, these two bones are brought too near together. They are approximated two or three inches nearer together than they ought to be. When you let your chest come down it comes down nearer and that shortens this muscle, don't you see. That is, it puts a slack into the muscle. It brings those two points together so this muscle is slacked and it can no longer do its work of lifting the abdominal viscera, holding them up but instead it lets everything drop down so it is a very common thing to see these sedentary men, bankers, lawyers, doctors, professional men, teachers, literary people, persons who spend a great deal of their lives sitting in an office chair, it is a common thing to see them going about in this sort of shape. They really think they are portly people and actually they are not. They are simply carrying their

hips in front instead of bdhind where they belong. Now you make one of these persons stand up against the wall and you will be surprised to see that they have a whole lot of room to let, don't you know, actually a whole lot of room for their clothes and room to let but they think they are really quite portly and this is why their clothes are pretty tight but you straighten them up, get their chest up where it belongs and these abdominal muscles belog in and there is a whole lot of space left here to spare. Why, I pushed a man up against the wall that way the other day and he had so much room I could almost have gotten inside myself. There was room enough for two. Now this is a very bad thing because when the abdominal muscles are relaxed in this way, the abdominal viscera fall down, the stomach falls down, the colon falls down and these prolapsed and fallen organs are the sourde of enormous trouble. Why, a person might a great deal better have a dislocated knee or hip than a dislocated stomach or colon. When the colon gets dislocated a tremendous amount of mischief results, stasis, stagnation, autointoxication. Then by and by come headaches, Bright's disease, aterioscleros is, premature old age and we see so many people. I met a man today in my office, 62 years old with a blood pressure of 238. Just think of it. I met a lady today only 50 with a her blood pressure of 231. I said to this man, "Put out your hand." I looked at his hand and it looked varnished like, a sort of fish skin on his hand, a thin parchment. This man's skin had been stained, don't you see. He had been sitting in an office chair counting over his checks, counting up his profits until he had gotten an enormous accumulation of blood in his interior here and so much blood there it caused an excessive growth of fat inside of the body so that he got a great accumulation of fat in there but his skin had become atrophied because it was so starved not having enough blood in it. Look at these splendid muscles of the back, the latissimus dorsi muscles, these splendid muscles that help to draw the ribs out and expand the chest but suppose they are tied up. That is the very place where the corset comes you see and those splendid great muscles are tied up so they cannot move. How intelligent would you

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think a person was who could be in the old days when they had to start a fire with a pair of bellows and brimstone matches and, not the very best kind of kindling wood and had to have a bellows to blow the fire with, what would you think if they tied the handles of the bellows together, then when they went to blow the fire siezed the bellows with the handle and worked it out just a little bit to get a little breath of air to fan the fire? That is just what a woman does who puts on a corset. She has got to use her lungs. They are the bellows that blow the vital fires of the body. Sometimes people through ignorance shut off the vital fires of the body but these fires must be blown continually to keep their life going. This lady starts out first of all by tying the handles of the bellows and she makes no allowance for what is going to happen during the day. Some ladies don't dress up until after breakfast but some dress before breakfast and such a woman never thinks that she must leave room for her breakfast and that she must leave foom for a quart for breakfast and a quart for dinner. She never thinks anything about that. She just puts on the clothes in the morning after a fasting for 12 hours not making any allowance for the increased size that comes from taking in a new supply of food. What is goind to happen? This stomach cannot expand. Why? Because of its bony cage so it has got to expand downward you see and every morsel of food that comes in simply stretches that stomach down and down and down and that is the way ladies get their stomachs down as you are going to see here pretty soon. There are five of these different layers of splendid muscles in the back that we use when we are bending forward and backward and are constantly exercising every second adjusting themselves to every changing pose when we are on our feet. By the way, I thought it would be interesting to look at some of the bones for instance. Here is a bone of an ostrich. Here are the bones of an elephant. Here is the leg bone of a cow with two toes you see. Here is the leg of a human being. Here is the arm. Here is the hand of a chimpanzee. See how wonderfully alike they are. They all have essentially the same bones. Here is the scapula, the shoulder bone. Here is the femur and the fibula. In this case here is the foot. The rest is over here.

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and these are the fingers further down. Here is the ankle, here really instead of there. What corresponds with this part of the foot is found up here in these quadrupeds. I just want you to look at those for a moment and the next time you sit down at the table and are offered a roast or a leg of mutton, for example, think of that leg, think of gnawing the flesh off the femur of a sheep. That is what it is doing . These animals are wonderfully like us. I am astonished that it is so hard for us to get the conception of kinship into our minds. When we can look into their eyes and they look into our eyes and know that they are forming an opinion of us, a conception of us. I never go down the street and meet a dog and he takes a look at me but I feel anxious that he is forming a food opinion of me. I would not like to have him feel it is duty to snap and snarl at me and to bark at me every time he met me on the street. Here is another layer of breathing muscles. Here are the intercostal muscles below these muscles right between the ribs that lead in the process of respiration. Here are the muscles of the back of the neck, the splendid muscles that sometimes become overstretched by allowing the neck to drag forward. The muscles should be brought up in such a way as to hold the head erect. Here are the pectoral muscles and they are very small compared with the great muscles at the lower part of the chest which are the normal muscles of respiration. Here is the greatest of all the muscles of respiration, the diaphragm. Here is where the aorta goes through and the other vessles and up under lies the liver and around over here lies the spleen and in between lies the stomach. Then down below are the large intestine, the small intestine and all the various other viscera of the abdomen. Now in breathing this inspiratory dome shaped musclecomes down. It is depressed with each movement and as it converses the viscera which lie under it, it pushes the blood out of them toward and causes the blood to pass upward through these large veins, up through the heart. The action of the diaphragm is very important not only for breathing but to help the portal circulation, to help prevent stagnation in the liver and these other internal organs also to aid digestion. That is why we have these general

exercises in the Gymnasium after breakfast and other after dinner. It is to aid digestion. There is a wonderful relation between the brain and the mind and the muscles and the circulation. Here is an experiment that showed very clearly the very interesting physiological fact that when we form a conception of a movement we have the idea of the movement in mind. The muscles that are necessary for producing that movement are prepared for that movement. For instance, you say to yourself, "now then I am going to contract my hand. I am going to shut my hand up." Before you have begun the effort of shutting the hand the muscles of the whole arm that contract to close the fingers are filled with blood ready for that movement. Just the moment you say to yourself, I am going to do a certain thing, I am going to raise my lef, I am going to thrust out my arm or perform any other movement, the moment you form a conception of that, the muscles are prepared for it. The muscles are dilated and the blood rushes in so everything is prepared and ready so when you send word to a muscle to act it is all ready to act. The ammunition is there and it is ready just the moment you pull the triger with your brain up here, the gun shoots you see. Here is a curious interesting apparatus, a platform which is balanced upon these wedge shaped points, you see. Here is a piece of hard metal and this is balanced upon this knife edge. The weight hung below the table is arranged to secure perfect balance and this is a little apparatus placed over the man's heart to notice the beating of the heart. Here is another instrument attached to the artery of his foot. This man after being perfectly balanced in this way was asked to think about moving his legs.

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Without making the slightest movements, just simply thinking about his leg, down went that end of the table; then he was asked about moving the muscles of the upper part of his body and the moment he thought about that, without making the slightest movement, down went the head of the table. You see, when he thought about moving his leg, that end of his body was heavier than it was before because blood has passed into that part of the body and passed out of the rest of the body.) This experiment has been repeated many many times. Some of these experiments have been made at Yale University At New Haven. (This shows the influence of fatigue upon the muscle. Each one of these little curves represents muscular movement by means of a little instrument known as Mosso's ergograph. This instrument is attached to a finger and the finger is made to contract, each line running up and down indicates the [redacted] amount of work done by the finger and each time it was less you see and it came steadily down and until by and by it came down to nothing so that it could not raise the weight again. A [redacted] string is passed over a pulley with a weight on the end of it and the finger was made to lift it until it could lift it no longer. It made fourteen contractions of the muscles and then it could not do another thing. That is because the whole body was tired. Then this person had massage applied for ten minutes and at the end of ten minutes the muscle went to work again and this shows how much more work it did.) I made the experiment about twenty years ago with a young man and had him work his muscle lifting a weight until he could not lift that weight again; then I had massage applied to his arm for five minutes; then he was set to work again and he lifted the weight more times than he did before. He was apparently stronger than he was at first.)

Now we have another interesting record here. These are known as "graphics". Now it is worth while to know about the different muscles. A person who has feeble muscles has feeble health; he has feeble resistance to disease; he has great internal congestion; all his internal organs are crippled with a great surplus of blood; his blood making processes are at a low ebb because the blood is made in the bones and the blood is drawn to the bones by the movements

of the muscles so if one does not have active muscles he will have miserable blood; poor blood; impoverish blood because the blood is made in the bones and the bones are ordered by the muscles. The blood is brought to the bones for repair and for replinishment by the activity of the muscles, so everybody should have a test of the muscles and we have here an instrument called the "Universal Dymamometer". I worked ten years on that instrument and finally got it perfected and I feel a little proud of the fact that the United States Government has adopted it as a means of testing young men that enlist in the army and in the navy at Annapolis and West Point. They have this instrument and every recruit for the navy or for the army is tested with this apparatus; everybody who goes into these schools, I mean for training, is tested there and after the test is made, than a chart is made. The same instrument is in use in many of the best gymnasiums of the world and it is the only means by which every different group of muscles in the body can be tested. Each column represents a different group of muscles and so we have the totals and the co-efficients here. The bladk line shows the first test; the red line the second test and the blue line the third test. In this case there was actually a little dropping off. This patient was getting weaker instead of stronger. Very rarely we find a person drops off in strength. Sometimes a person gains as much as 500 pounds of strength in a week. The normal strength of the average man is about 5,000, of the average woman about half that. The average woman is not so large as the average man and she has not the same opportunity for muscular development, but there is no reason why the woman should be the weaker vessel as they have been taught they must be. There is no reason for that.

Here we have another chart showing the effect of treatment upon a patient. A man was given a bath and he was first tested and his strength found to be 6480 pounds. Then he was given a warm bath and it was found his strength was 5415 pounds after a hot bath. Then he was given a cold douche and immediately his strength was restored to the original of 6480 pounds. The individual's total came out just the same as at first. So you see the weakness one feels after a warm bath is not a permanent weakness but it is the sort of weakness that is relieved

at once after a cold bath and there is another thing shown by this also: that when one is in a depressed condition, a cold bath will increase his energy. This man made an increase of strength of almost exactly 1000 pounds gained in strength in three minutes by the application of a cold douche, a cold bath. That is why you feel better after you get up in the morning and go down to the bath room and get the cold morning shower, spray or swim or when you go away and talk a walk in the cold frosty air, breathing the cold air and getting the tonic effect of the cold. I seldom weal gloves in the winter time because I feel the same sort of exhilaration from getting my hands cold as from exposing my face to the cold. There is a great benefit if it is not carried to an extreme in exposing the skin to the cold. The messages which are sent into the body are such as to cause an uplift, and every little breath of cold air has an uplift in it. It is really the elixir of life and in taking a thousands breaths an hour, one can see that the sum total is very considerable. Sleeping eight hours with the windows open you get eight thousand little lifts you see. Sleep in the cold air every night that you can and get the splendid benefit from this tonic influence. Now when the muscles are not properly developed the body easily falls into disorderly postures and deformities are developed.

Here are some figures to show the normal position. Here is an Italian woman, Venus de' Medici; here is a woman who never wore a corset and had a natural development of the waist, a woman of Algeria. There is an Italian model woman. Models are not allowed to wear tight clothes. This is the Venus de Milo and here is a devotee of fashion. Where is her stomach? Echo answers, where. There is no provision made for it. Here are the natural outlines of a healthywoman. These represent an actual woman made over her undergarments. This diagram was made by means of a little tracing instrument. I made this tracing and this gives just the shape of this woman's figure. This woman never wore a corset in her life. Some of you say, "If I had such a figure as she had, I would not wear a corset either", but the reason you have not such a good figure is because you have not been wearing your clothes properly and have been careless in your habits and your muscles have become weak so that they are not able to hold the body in the

proper shape. Here are some figures which are the results of what I have been telling you. These represent actual living facts. Those young ladies happened, both of them, to be school teachers that came here about twenty-five years ago and they had those miserable deformed outlines. In those days I made a special study of figures and had an outline of everybody who came. After a few years I began to understand what it meant. Those young ladies were deformed but they were taught how to stand, how to sit; were put into the gymnasium and they got enthusiastic about it and the result was these two figures here. Both became very enthusiastic teachers of physical culture and went out preaching the gospel of health, of sound healthy mind and a sound body. Now this shows you how some people walk; these shows the teetering walk, the relaxed gate and heel stepping. That is what makes people so tired walking because they put their heels down with a jar. This shows somewhere nearly the proper way to walk but this is a little exaggerated. (The body should be carried forward and the chest should be carried forward insuch a way that the chest is balanced over the toes, then as one steps along the chest goes forward with the foot and the foot never gets much in front of the body but the body is always under the chest, that is an easy way to walk.) See the results of some of these conditions. That woman's figure I was showing you there, here she is again. When the body is put up in this way so many people are anxious to know, "how can I have my prolapsed stomach cured". A lady came to me and in great alarm a day or two ago. She had found her stomach was prolapsed and wanted to know if anything could be done for it. I remember very well a young lady who came in and she had learned that her right kidney had fallen out of place and she was heart broken about it. I put my hand upon her side and there was that kidney floating around loose in there. I said to her, "Put your chest up now. Stand up straight". She was rather a short person and I told her to stand as tall as she could and to push up her head just as far as she could, then a little farther, just a little taller and she pushed her head up as high as she could and I had my finger on her kidney and when she got her chest raised up properly, that kidney simply popped out from under my finger and went home. It had not had a chance to get home and have a visit with

the neighborly liver where it ~~is~~ belongs, next door to the liver for a year or more perhaps. And so we must hold the chest up, carry it forward and walk up lightly.

Here are some more deformities you see, the liver, stomach and colon. These are all actual facts as I found them in my consulting room and have recorded them years and years ago. Now we have the X-ray which makes a picture and it gives such positive proofs of the normal position that we find it a great deal easier to get people to understand it than we ~~did~~ in the old days when we had to locate these various organs by palpation and by other less-exact methods. These are all internal deformities that are ~~a~~ immensely more consequence than external deformities. You may have a broken nose, a broken arm or leg or even a leg gone or dislocated hip or be minus a foot, you could have any of those deformities I have mentioned and not have your general health particularly influenced, but if you get your liver out of place, if you get your kidney out of place, if your stomach is in the wrong position, there is dire mischief and it is going to be working and working day and night and accumulating and it is certainly going to shorten your life. Now just see what happens here when the diaphragm is tied up. Here is the normal diaphragm. The waist is naturally elliptical, but this is what I actually found in a case. There is no chance for expansion at the side or below or very little. That diaphragm cannot come down straight. There is no chance for it. The waist naturally expands ~~although~~ all along the line, the chest and diaphragm along the line and the diaphragm comes down and the abdomen extends here but the expansion is away down here. That pushes everything down you see. See the difference in the figure of a conventional woman and a normal woman. The conventional woman has a hollow space in front and a prominent person in the lower abdomen because things that belong up here have dropped down. If these muscles have the proper tone, this condition of things does not exist. Now this woman hasn't given any thought at all to the fact that there are important viscera here that need to be taken care of. You will see the liver does not look very bad from an artistic standpoint, but from a

biological standpoint it looks very bad because it is bad. This woman has not given any consideration to her viscera at all. She is simply thinking of ~~grunkly~~ graceful flowing lines and is not thinking anything at all about liver, spleen, kidney and other internal organs that need to have some consideration. Here is the consequence. That is the result of this neglect. This is the normal skeleton and here is the conventional skeleton; here is the Venus de Milo and the fashion plate. Here is a diagram copied from Vienssen, the great german anatomist. This is just the condition I have found in some hundreds of women. In this figure the liver, stomach and colon are all above this line here. The liver, stomach kidneys, pancreas, spleen and colon, all those organs are above the lower border of the ribs. On the other side, the liver, stomach and kidneys are all below. That is the condition we find in persons who have undeveloped feeble abdominal muscles, men as well as women. These figures were made some years ago when some things were in fashion that are not in fashion now a days. The fashion mongers used to pad things out behind in order to get that back curve, don't you see. The normal figure gives the proper basis for the drapping and clothing without these monstrisities and , of course, this bad proportion in front made a necessity for adding something behind, so these excrescencies have been added in an attempt to approximate the normal proportion. More recently the fashion mongers have adopted what is known as the"straight front" corset in which they have overcome some of these very monstrous and ugly features but the mischief has not by any means been overcome. Now you see if the constriction comes up here it does no harm. It is down here where the harm comes. Up here the breast bone and the ribs are so strong, so rigid the chest is that there is very little expansion anyhow, but down here in this region there is perfect freedom with this sort of dress. Here is a style of dress also that is absolutely unobjectionable. The so-called waist line is absolutely a misnomer. There is no such thing as a waist line unless you make it. It is an artificial creation. Now just a word about poses. We have to give this matter of pose consideration of the body all the time. We have to think of it when we rise up and when we sit down, when we go out and when we come in.

We have got to consider it worth while to sit straight, to sit erect. I asked an American gentleman I met in Seria some years ago, I asked him,"How does it happen that these arabs are all so erect, so straight so that one says 'as erect as an arab', how does it happen? Is it natural for them?" "Oh no", he said, "they are just like other people". He said, "If you were in an arab camp at night, just about sundown when they are getting quiet you will hear the old father saying, 'Sit up there Abraham, sit up Jacob. What are you doubled down like a fool for?'" He said, "They are continually talking to the children to preserve the proper attitude." I was walking along the border of the Nile one day in Egypt and I saw a couple of native children playing outside of the door of a little mud cottage where they lived and one had a block of wood on her head and the other had a tin plate on her head and these little ones took the greatest care in their place not to dislodge those little things they were carrying about on their head. They were running and skipping about,having a good time but they never for a moment allowed the object on their head to slip off. I said to my guide, "Why are those children carrying those objects on their head? Is it punsihment?" He said, "Oh no, their mother is training them so that they will have erect bodies". It is a common thing to see in the orient, people carrying enormous loads on their head and even in southern Europe--I remember in Naples once, thirty years ago, I saw something that arristed my attention and I stopped to watch the proceeding. I saw four men pick up a large bookcase that lay upon the side walk. A man at each corner of it picked it up and it was a large heavy wooden bookcase and I supposed they were going to carry it down the street, but the thing that attracted my attention was this fact: these men raised after this bookcase up, the keptlifting it up higher and higher yet and by and by a little woman who stood beside the walk watching the proceeding, suddenly stepped under that bookcase adjusted herself to the very center of it and these men spent a moment balancing it and then off she went down the street with that great bookcase on her head. That woman walked erect, her body had been trained till every muscle was taut as a fiddle string when she was walking and at the same time her movements were exceedingly graceful, of course, not when she was carrying

that heavy weight, but every muscle was in training. The American woman thinks she must have something to hold her up, she has got to have a stiff case of some kind. Why, you take off some of these garments, and some of this outer armor that most women wear in order to keep their bodies erect, take it off and the woman says, "Dear me, I shall fall all to pieces". A great many women think they cannot hold themselfes together without some artificial support of this kind. They have to have a case, a skeleton like a turtle. This is just simply because of the injury and the damage that has been done by following the dictates of dame fashion and what a tyrant she is.

- Here is a correct attitude and down here is a wrong attitude. These poor fellows work out doors and get dyspepsia sawing wood, but these fellows are a lot of good strong vigorous men full of vim with long living constitutional vigous that comes from find out door living. These pictures illustrate the evil of sitting in chairs which have no support for the back and no support for the feet, showing the effect upon children. A great deal of mischief is done by our school seats in this way. We are cultivating disease all the time. We take a healthy little child that is born into the world, perhaps as healthy as a savage and with just as good an outlook upon the world as though it were born inthe woods somewhere and we begin right away to make it sick, to deform it, to tame it. to a life of invalidism. Now there are various things I may speak of further, but we will hurriedly pass on.

I want to say a word to you about the blood. Here are some blood cells that fight for our lives, that protect us from germs. Here are some healthy blood cells. This shows the kind of cells that are the sentinels of our body, of the living city bell that fight against the germs that invade our bodies. Here particularly are the cells that capture germs and eat them up. That shows the portal circulation I was telling you about. This is the membrane attached to the intestine, so you see what an enormous supply of blood there is here and how easily this portion of the body may become congested. Here are some of these red cells in a vessel and here are some other white cells slipping out. There are some

germs out in the tissues and each [redacted] white cell makes a little gimlet and boars a hole for itself, then tucks itself through as you would tuck a pocket handerchief through a ring, then they go after these germs. They have a marvelous instinct that leads them straight to the mark. They do not have to go hunting around like a rat. This blood cell came out somewhere and went right straight to that germ and swallowed it. It did not have to nose around to find it, it went right straight to it and swallowed it. Millions of these germs are swarming into the body every moment of our lives and these living cells defend the body. There are many millions of them continually working for us to capture these germs and destroy them and that is why we live. Sometimes some of the germs get under the skin and escape getting caught, then they go and develop producing a boil or an abcess or pimple on the face or set up some worse mischief if they have got into the circulation. I have got to operate tomorrow upon a man who has a diseased pancreas because some of these germs got in and were allowed to get into the [redacted] vital organs and were growing and developing there and I don't know whether we shall be able to save his life or not but we will do the very best we can for him. Here are some other forms of diseased white cells. This condition exists in anemia. When these conditions arise, then these diseased cells will attack the blood vessels of, the kidneys, the brain, the bones, the muscles, and so a diseased condition is produced. This is the way fatty degeneration and fibrous degeneration and hardening of the arteries and Bright's disease are produced by the diseased blood vessels attacking the tissues and destroying them. Now how much better it would be if we lived a simple life. We are forgetting about it, we are getting so civilized, so anxious about the education of our brains and the accumulation of property, providing for our children, getting good government and so many other things, we are getting so interested in those things that we are getting about the greater things. The things that are of biologic interest, the things that are fundamentally necessary for the health and the life and the preservation of the human race, we are getting about it. The time will come when euthenics and eugenics will be the two great things that will be studied in our school and in our colleges and in universities more than any other and that is what ought to be the real

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situation. How happy those little ones are under the apple tree picking blossoms! What a delightful thing it is to get out close to nature out upon the fresh green grass and reach up and gather flowers from the trees, or the violets from the turf and to live close to nature. It is the natural thing. How much recuperated we feel when we are able to spend a few weeks in that way. Now that is the way we ought to live all the time. We ought to have a little of that every day of our lives. These artificial lives wex are living are entirely unnaturally and we suffer as we do because of it. Every person in this room who is suffering is suffering because of wrong habits, of pervertions of our modern civilization and we have got to get away from these pervertions and to find out somehow how to adjust ourselves to civilized life without at the same time depriving ourselves of the benefit of a natural and wholesome life. These little ones are growing up in a simple, healthy natural way. That little one is enjoying simple life so far, but the next thing the mother will do to it is [redacted] to begin to tame [redacted] it, pervert it and spoil it and by the time the little fellow is sixteen years old he will be pretty thoroughly spoiled. The most of us have been tamed and civilized too much. We have got to cultivate a mild return to savagery, but it is bed time and I must let you go. I thank you for your attention.

End.

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Question Box Lecture at the Sanitarium Parlor, Battle Creek, Michigan,

Monday, May 5, 1913 at 8 p. m.

by

J. H. Kellogg, M. D.

Q—What can be done for the relief of obstinate canker sores in the mouth which resist treatment with alkaline washes?

A--These canker sores in the mouth have not been understood until quite recently. A year ago last winter when I was in Germany, I called upon Prof. Ehrlich, the famous discoverer of six hundred and six and of numerous other very valuable remedies and Dr. Ehrlich told me that he had recently made the discovery that these sores in the mouth were do to spirochetes. Now a spirochete is an animal parasite. The spirochete or a certain variety of the spirochete is the cause of that terrible disease known as"syphilis", but this spirochete that is found in the mouth and which produces these little sores is not the same spirochete but it is an animal parasite belonging to the same general class but of a different variety or specie, so it is a parasitic trouble and it needs to be fought with remedies which are capable of destroying these parasites and Dr. Ehrlich told me he had found that six hundred and six would destroy these spirochetes as it will destroy all other spirochetes. It is fatal to every spirochete that is known and capable of destroying them, so six hundred and six placed in the mouth and rubbed on these little sores and the same thing is true with reference to sores that form around the gums and what is known as pyoorhea that causes a shrinking away of the gums and loosening up the teeth, that is due to the same cause. Dr. Ehrlich has shown that a cure was very quickly effected by rubbing a little of this remedy, six hundred and six, into the sores. I have occasion to recommend it for a few of these cases and it apparently has proven to be very successful. I ought to say further, however, that this condition of the mouth due to spirochetes is only present in persons who are in a state of low vital resistance. There must a lowered state of resistance of the body cells as well as the presence of the parasite. It takes the two things to make the disease. It takes the infective

agent and it takes a weakened body because God did not make this splendid body of ours subject to these miserable pusillanimous germs. The human body is made superior to all these enemies but it is only when the body is weakened and depraived and deteriorated by sin against some great law of God, it is hard to draw a distinction between natural laws and natural laws, they are all one to me because the law of God is a divine law and any infaction of these great laws with reference to our bodies lessensour power to resist disease and in that way we become more and more deteriorated until our resisting power may be reduced to such a degree that almost any germ can attack us and can get the better of us. I remember some years ago I was very much surprised at a man who had been apparently in perfect health. He came into the institution with a little bit of a red spot on his arm and he said, "What is that little red spot? It stings a little". We began to suspect the fault was spreading and it spread quite rapidly. We began to suspect theremight be something wrong. This man was a friend of mine. I know him very well,had known him since his boyhood and we began to fight that little red spot but we saw it spreading. In spite of everything we could do for that man in a week he was in his coffin. We labored with might and main. We got our whole faculty together and we labored by that man's bedside day and night for he was a dear friend and in spite of everything we could do, in less than a week he was dead. Now we watched the growth of that little germ that started with a little speck, not so big as a head of a pin and in three days his entire body was filled with those germs, germs in his blood, germs in his excretions, his entire body was taken possession of by those germs. We examined it in our laboratory and could not find anything very serious. They were simply ordinary germs that are always found on the skin. The staphylococcus pyogenes albus, a germ that makes little pimples and boils. We sent some of them down to New York and had them examined by a great bacteriologist there and he reported it was a very simple harmless kind of germ, not absolutely harmless but a very mild kind of germ and yet it had gotten into this man's body and spread and spread, got into his blood and everywhere in his body and nothing would stay its ravages.

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When we applied the usual remedies to this patient he did not respond. First we examined the blood. We found the white cells that ought to have increased in the presence of such an enemy did not increase. There were no more white cells at the end of 24 hours than at the beginning. His body made apparently no attempt whatever, to fight those germs and they simply came in and formed through his body and carried him off. He died in coma the result of poisons produced by germs. Now what was the trouble? This man had ambitions to satisfy and he had been sitting up late at night, working all night and he pursued this course for several months and even several years. He was planning upon having the vitality which he did not possess. He had gone away beyond all reason in expending energy and depriving himself of rest in order to carry on some interesting researches he was pursuing, mathematical researches largely,and going on working until three or four o'clock in the morning and he had reduced his resistance to that point that he had no power to stand up against these invading enemies. Now what is true in this case is true in the case of everybody who gets into a position where he becomes subject to attacks by diseased germs. There are some germs to which most of us are liable probably all the time. For instance, smallpox. There is hardly anybody who is able to resist smallpox yet there are some. Typhoid fever is a germ that attacks many people but if yet typhoid fever germs get into the city water of this town everbody would not have typhoid fever. Perhaps half the people of the town would have typhoid fever and the other half would not have it. Bec- Why? Because they have power to resist the typhoid fever germ. That is the reason. Now the proper protection against disease of any sort and of every sort is to live above disease. It is to keep the body in such high tone and in sucha state of high resistance that no germ can reach it. Now it

is said that over in Scotland at the top of Mt. Ben Nevis that nobody ever has a cold, that if anybody goes on the top of this mountain with acold he gets over the cold in a few days and people who live up there and are entirely free from colds when they come down into the lowlands they are likely to get a cold. What is the reason for it? The people up there on the mountain top are breathing such pure air and are bathed in such an abundance of sunshine and are enjoying such fine conditions for life that they are able to resist the attack of disease. They have the germs with them all the while but they are so cleaned up by the favorable conditions of life that surround them that they are able to resist the germs and to fight them off and when they come down they are exposed to the miasms, fogs, less pure air, less sunshine and more shade and dampness, etc., and they very soon lose this resistance. The idea then you see my friends is to live high all the time, in your diet, in all that relates to human life, to live on a high plane, to keep up so high that the germs cannot reach you. Germs are like wolves of the prairie. They are always seeking prey and if we allow ourselves to come down on the low ground of wrong habits of live, of gross habits, gross eating, carelessness in relation to the care of our bodies, if we allow ourselves to live in those flaws, the germs will make us an easy prey.

Q. Why are the senses of elderly people more elert? and the eyes stronger and clearer when the diet is of lean meat, poultry, game, etc?

A. Now, I think my answer to that question will be the answer that Benjamin Franklinmade on a certain occasion. It involved a fresh as this question does. When Benjamin Franklin was a member of the French Academy

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When Benjamin Franklin was a member of the French Academy and when he was U. S. Minister to France there was brought before the Academy this question, "Why does a pail of water with a fish in it weigh no more than a pail of water without the fish?" Several of the mathematicians brought in a very large discussion in explanation of that remarkable phenomenon. They proved mathematically that with a fish in the water there were certain forces in operation that sustained the fish in such a way that it did not add anything at all to the weight and they made it very clear. Benjamin Franklin said bring us a pail of water and a fish and let us weight it so he weighed the pail of water without the fish and weighed the pail of water with the fish and he found the pail of water with the fish weighed just as much as the pail of water without the fish plus the fish. In other words, he found it was not true. Now that is my answer to this question. Just bring me that man that can demonstrate the truth of this proposition and then we will consider the reasons for it and I have no doubt we will find a good reason. (Let me tell you something that I can testify to myself. I am in my 62nd year. Twenty years ago when I was in my 42nd year I began to wear glasses, old peoples glasses as the average man does at 42. That is the time to begin to put on glasses because that is the time the eyes normally become presbyopic and I have been wearing glasses ever since. About six months ago I noticed that my eyes began to ache when I used them for some hours in succession and I thought that there must be something the matter with my glasses but I didn't have time to attend to it, didn't think of it until after I would get to bed at night and begin my night's work which I do after I go to bed. I find my bed after I go home all covered with work. It is called my night box. I have at my house ahypothetical thing called a night box and that is the top of my bed and it is all covered over when I get

home with proof sheets and new form books to be looked over and with other things, hard jobs, great long letters who were here 25 years ago and who say, "Doctor, you remember how I suffered when I was at your place 25 years ago and I am in just the same situation now. What shall I do?" and I have to go to work and after I have been working an hour or two I would find my eyes aching somewhat and I would think now tomorrow I will have my eyes tested but I have been so busy that I have forgot all about it. (A few years ago I noticed my arms began to ache as well as my eyes and I studied into it and I found it was due to the fact that my arms got tired holding my work so clomse to my eyes. I was very much surprised and I went to work to look into this thing and I went to see an oculist last week, Dr. Colver, had him test my eyes and he found my eyes were going back on me. He used a very common phrase rather a vulgarism. (My eyes are really going back on me,to use a very common phrase, rather a vulgarism. My eyes are really going back on me. They have gone back nearly ten years. In other words, my glasses were too old for me. My eyes had got ten years younger so that the test my eyes gave was just the test that gave eight or ten years ago and the glasses I wear now are exactly the same as are the glasses that fitted me ten years ago) and I have not been eating any meat either. A little while ago I happened to meet a friend and I was rather delighted to tell him about how that I had suddenly discovered I was eight years younger than I was supposed I was and told him how I was going on so very nicely with my glasses and I happened to have a little book in my hand that I was looking at with my glasses and happened to take my glasses off and found out that I could read the book entirely without glasses. (I did not need glasses at all.) As a matter of fact the glasses were a little convenient but I was able to read the book but ordinary reading for instance, without any glasses whatever, does not bother me particularly (and I have demonstrated to a number of my

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friends during the last three or four days that I could take a bbok with ordinary print and good light and read just this as rapidly as anybody can without glasses though I have been wearing glasses for twenty years. I am very certain that in my case this has not been brought about by the eating of lean meat. I am conscious of a very great gain in the clearness and feshness of my sight which is very gratifying to me because I have used my eyes so badly reading on the cars, dictating letters, translating French and German books and dictating to a stenographer on the cars and reading on streetcard and even writing in an automobile and working all day and all night and have used my eyes I think just as badly as anybody possibly could and it is quite a pleasure to me to find I have all the time expected that they were going to get old faster than the rest of me but instead of that I find I am actually getting younger and I also have some evidences that I am getting younger in other ways too. I find my hands steadier and my feet in better circulation and with more strength and energy than I did five or six years ago and I attributed to the fact that we are all the time making some little discovery that I take hold of. You see about one hundred thousand people have come here to the Sanitarium since I have been in charge of it and I have inquirxed of a large number of these people, "What have you been doing to make you sick?" When I found somebody had been doing something to make them sick I took good care not to do that.) I profited by their experience and I have been experimenting on a whole lot of these one hundred thousand people who have been here to see what made them better. Whenever I found a thing that made another person better I tried it myself. You know doctors take the medicine they find do their patients good. Sometime ago I had a visit from Governor Buckley of the state of Michigan, Governor at that time. He is dead since. He died of cigars and beefsteak I am sorry to say. Well, Governor Buckley had just been down to .Chicago to attend the great banquet given to v-m General Grant when he was coming back from his trip around the world, his

triumphal tour. All elderly people who are here I am sure will remember it and he got as far as Battle Creek on his way home and he had an attack of gout so bad that he could not go any farther and he came up here to see me to see what would stop his gout. "Now, he said Doctor, "You need not recommend colchicum because I have got it here in my pocket. I always take it along when I go to a banquet because I know I am going to have an attack of gout and it usually stops it but it didn't this time. By the way,we had a [illegible] big dinner down there at Chicago. We sat at the table for five hours. Just think of it." I began to suggest to him various things that were good for a man that had the gout, to stop his beefsteak and his cigars, etc. Now, he said, "Look here, I want some medicine, something that will help me right away and I don't want you to try any experiments on me. The last time I had gout I went to a Detroit doctor and I asked him for some medicine and he wrote a prescription for me and when I got down the street a little ways I heard him shouting to me,'Governor, Governor come back' so I went backand he said this to me, "Look here Governor,if that medicine does you any good I wish you would let me know because I have got it myself. Now he said, "I don't want any experimenting on me." I confess that with the rest of the doctors I have done a whole lot of experimenting. Before we had methods of analysis of the stomach fluid and giving people test meals we had to experiment. There was not any means of knowing whether a man had hyperacidity, whether his stomach was making too much gastric acid or whether he had too little gastric acid and his food was souring and making trouble in that way. We had no means in the world of telling. I went to Germany about 25 years ago and found out about the analysis of the gastric fluid, came back and found a patient we had been giving hydrochloric acid to for two months and she felt sometimes a little better but on the whole she was worse. She was the first person we investigated and the specimen of gastric juice from her stomach when examined showed her stomach fluid had three times as much acid as it ought to have and here we had been giving her more all the time. Now I don't feel so much ashamed of that because we did not have the means. She thought we ought

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to pay her damages and I don't know but what we ought to have paid her damages but we had done the best we knew how. I don't feel so very much ashamed however, because we had done the best medical science up to that time enabled us to do but when a famous Englishman came here last year and told us that he was carrying around in his pocket a bottle of hydrochloric acid he said he was scared to death all the time for fear the bottle would break and burn a hole in his coat. When we found that man who had been taking that hydrochloric acid every day for months had twice as much hydrochloric acid as anybody ought to have, I felt that we at least were not behind the London doctors in making use investigations of our cases. That doctor I think had really some reason to feel ashamed because there is no reason for it now but we had not that means in the old days and when I had a dyspeptic come into my office and begin to tell his tale of woe, when I began to think of what I should do for him, I really sometimes began to shudder at what we had got to go through. We had to try one thing and if it made him worse we would give him something else. If it made him better we would keep on doing it. That is all there was about it and we hadn't any better way. Now what is true with reference to the stomach wastrue of a good many other things but the X-ray now has come along and given us great enlightenment. We could not tell whether a man's stomach was woking too fast or too slow until we were able to give him a test meal and watch that test meal all the way down through the stomach and small intestine, clear down to the colon and sometimes we watch it back again because the ileocecal valve happens to be incompetent and then we pretty soon find it begins to start back and works upward. We had a case today in which this decompesing material down there in the colon had actually worked back to the small intestine and infected the gallbladder and the poor girl 22 or 23 years old has got six of these gallstones that we can count. It was a great relief to our minds don't you see to be able to look inside and actually take an inventory of the situation in advance of the surgical operation. It helps us immensely, but it is important that we should bring

all of these agencies to bear upon any case in order to know the exact facts and when we do it then it is not trying to do any guessing but I fear I am wandering from the subject.

Q. Why are carnivora active, alert and long lived and herbivora sluggish stupish and short lived?

A. Now I have been called various things but I don't think I have been called sluggish yet. I have been called a crank and a faddist and so on but people don't give us credit for being able to get around do things at any rate but now let us look into that. Why are carnivora active, alert and long lived. Let us take a sample of that/if you please for example. Where will we find a wonderfully active, long lived animal that is a carnivorous animal. There are certainly very few. The eagle and the raven are about the only animals of long lived and carnivorous animals. The eagle is long lived and it is a carnivorous animal but the eagle will eat nothing but fresh meat, living flesh. It eats it at once and its alimentary canal is so short that the unused remnants of that meat are passed out of the body before there has been any time for putrefaction. That is the reason why the eagle lives so long because he lives on absolutely fresh meat and gets rid of the remnants before there has been any putrefaction. Are you acquainted with a cat that is 20 years old. A dog is an old dog that is 8 years old and when he is ten or 12 or 14 years old he is a very old dog, is crippled and goes limping about with rheumatism or gout. He is all crippled up. A friend of mine had a dog that he used to feed his meat and he ate meat himself. After while he reformed himself but the dog did not. It used to be the most amusing thing to see that dog of his going down Washington Street here. He had one gait with his front legs and an another with his hind legs because he had rheumatism so bad in the hind legs he could not take as long steps with his hind legs and it was amusing to see him going along. I used to point to that dog as a good advertisment as to what happens to a meat eater and the poor dog died before he was 14. You

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have all heard of Senator Palmer. He had a very fine dog and when I heard about it which was perhaps 8 or 10 years ago the dog was over 20 years old and it was a vegetarian like myself. It had not eaten any meat, had never been fed any meat, had always refushed to eat meat, a remarkably intelligent and sensible dog. I won't make any further comparisons about that. Well, this dog was remarkably healthy and well at over 20 years of age. Where did you ever see a meat eating dog at that age that was free from rheumatism.

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and where did you ever see a meat eating dog at that age that was free from rheumatism. Now let us look at the other side of the pic ture. Where is there any creature in the world more active, more enduring than our a reindeer, for example. The reindeer lives upon the very coarsest of vegetable foods and the gazelle, the antelope, all of these creatures are non-flesh eaters and when you come to think of strength, look at the elephant, that great splendid vegetarian and then there is the rhinoceros and the hippopotamus. These animals also what wonderful strength they have and they live upon the very coarsest kind of food. [redacted] they have enormous strength and the elephant has tremendous endurance and there is the camel, another splendid vegetarian as Dr. Goucher was telling me the other day, camels are so tough have such temendous endurance that they actually travel three weeks on the desert without a drop of water. I do not know how long they can travel without food but they will go days and days without food. Where do you find a carnivorous animal that could at all equal such endurance as that? Carnivorous animals have very little endurance. Mr. Roosevelt when he was out hunting in these East Africa a few years ago gave some very interesting accounts of his exploits. I read with a good deal of interest and amusement as I suppose many of you did among other things that he gave an account of hunting lions. I do not object to Mr. Roosevelt killing hunting lions at all for lions are murderers and destroyers and the fewer we have the better. Mr. Roosevelt gave several accounts of running down lions, shooting them, killing them and he made this statement, that an ordinary horse with a large mann on his back can run down a lion in a mile and a half any time. Now just think of it, a horse which is not a very large animal with a large man on his back that perhaps weighs one-third as much as the horse himself does or one-fourth at any rate, has such endurance and such speed that he can run down a lion with no handicaps at all in a mile and a half. That is

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a very short distance. The lion has no endurance because his body is all full of fatigued poisons. That is the reason why. Now is it absolutely impossible that a person can cultivate youth on a meat diet. Just let me give you one reason that you will see at once cannot be answered, one argument that/cannot absolutely be answered. "Why do we live and how do we live?" It is because we are fed. We take in continually new life. Where does the life from the food come from? in From the sun. It is the solar energy that by the alchemy of the vegetable organic world, tortured, stirred up, bound up in these little bundles that we call food. An apple is simply a little mass of stored sunlight. A loaf of bread is simply stored sunlight. Life and energy are brought to the life of the plant in the sunlight and stored up for us and when we take this food into our bodies we take in life. An apple consists of stored life, nothing but stored life. There is no gas in an apple. It is simply stored up life ready for you and me to use and if we expect to live we must live by replenishing the life of our bodies which is continually wasting from day to day and when it is finally all gone then we die. Now, how about an animal? Let us see about an the animal. When an animal eats food it is for a certain purpose. What is its purpose? It is to supply the tissue and the energy which has been wasted or used up and has died. An animal has kidneys. What for? To eliminate the poison that results from the death of the body tissues. An animal has a liver. What for? To carry off the deadly poisons that are produced by the death of the tissues. The spleen is the graveyard. Somebody asked me the other day, what is the spleen? It is a graveyard. You who have not thought of it in that way before. The spleen is a cemetery. Eight million blood cells are dying every second of our lives and they are carried down to the spleen and there are some big scavenger cells there which capture these dead cells and eat them up so the spleen is a sort of rendering establishment and the liver is a partner in the business and these dead corpuscles are rendered and the products of decay are

carried off out of the body through the liver and the kidneys so you see in the body there are two things. There is life, the active life, the conscious life, the somatic life, the organic life of the body, the tissue life. Then in addition to that there is this. Now so long as life predominates over death we can live but if at any time death comes to predominate over life then we ~~must~~ die. Then there is a struggle between these two forces in the body all the time, life and death and the more life there is in us and the less death the more energy we have and the more lively and enduring we are but if death comes to predominate we feel ourselves getting old, we feel ourselves getting sick and declining becoming debilitated and weakened because death is coming in like a flood and life is waning. Now when one eats vegetables if he eats food of a vegetable character, when we eat this kind of food we take into our bodies pure life which replenishes our lives and increases our store of life. When one eats an animal on the other hand, he takes into his body not only life but also death, the death that is in that animal and it is eating that animal straight down toward this ---------- When we eat an animal we eat death, life and death you see. Now the more life we take into our bodies the purer the life we take ~~the~~ into our bodies the purer our life is sustained and the more it is reinforced and replenished. The great teacher of the world said, "Let your bodies be filled with life." Now that is what we do when we live upon wholesome, natural food of vegetable origin because that is simply sunlight. The wheatand the corn and the fruits and the nuts and all of those things are simply stored up sunlight and when we live upon those foods we take into our bodies simply pure, divine life that God created for our maintanance but when one subsists upon an animal there is death along with the life of that animal. There is darkness along with the light so the darkness may be taken into our bodies to such an extent as by and by to diminish the light. Now let me give you a good illustration of that. Up in Stockholm there is a wonderful museum. In this museum there is a preparation which illustrates the change from

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childhood to age. This illustrates what that change consists in and it consists simply of a series of eyes. An ingenious Swedish discoverer produced a method by which the human eye and the human tissues can be preserved in such a way as to retain all their natural transparency. It is a marvelous discovery. At the Dresden exhibition a year ago last winter I saw all kinds of bodily tissues preserved in this way with all their natural transparency. In this exhibition there was a series of eyes that looked right at you that looked exactly like living eyes. The first one of the series is the eye of a young infant and looking into that little eye it looks like looking straight into the purest water. It is absolutely clear and transparent and pellucid as a drop of the purest dew. The next is that of a child ten years old and this begins to show just the slightest big of color. There is a little reflection of light from that because it is not absolutely transparent. Then comes a young man of twenty and you can see that the crystaline lens is there. You can see it distinctly. Then comes a man of thirty and here you can see the fluids are beginning to be slightly opaque and at forty still more opaque and at sixty still more opaque and by and by it goes on to old age and the pupil is very opaque. You have sometimes noticed in an old person that the pupil looks light instead of black. You have noticed also how deep a baby's eye looks. You look into the inpenetrable depth of an infant's eye because of the transparency of that eye. It is because there is no death in it. It is life. The tissues are all clean and pure. It is being fed natural food and its tissues are absolutely clean but as we go on in life one eats death and beings begins to accumulate more and more. The tissues become transparent and the fluids of the eye begin to share with the rest of the body this increasing opacity so the whole body is becoming less filled with light, less transparent to light and the darkness is gradually gathering and by and by it comes to such a degree that the bodily functions can no longer be performed. One part of the body in which it accumulates is the kidneys and the kidneys after a while lose

their power to do their work and that is Bright's disease. When these poisons accumulate in the arteries the arteries become hardened and shrunken and that is arteriosclerosis and if it happens in the brain pretty soon an artery will rupture because its walls have become weakened, changed to opaque lime instead of transparent tissues so the whole body gradually becomes opaque. Now meat eating certainly leads to this end. Why? Because an animal is a creature. An ox, a sheep is a creature like ourselves. In its tissues this same process is going on that is going on in our bodies and when a man eats meat he adds to the accumulation of his own body the accumulation of another animals body but you say, that don't amount to very much. Consider what it may amount to. A man eats a pound ofnbeef a day, that is, thirty pounds in a month. In five months we see that is 150 pounds. That is the weight of his own body and in this five months he has added to the accumulations of his own body these effete accumulations. He has added the accumulationsof another body equal to his own and if he goes on doing that twice a year, you see what is happening to him. You see what is happening to him twice a year and in ten years he has done that thing twenty times so you see the effect is cumulative and so insidious and so very slow and apparently imperceptible that we do not recognize it. It is exactly with this thing as it is with beer drinking. It is the hardest thing in the world to convince a German that beer drinking does him any harm. He sayd he feels better when he takes a glass of beer. It is only when we consider the subject in a large way and follow it patiently through from the beginning to end that we are able to see the evil of these habits.

Q. Why did the meat eating rats outrun the vegetarian rats in the experiment conducted by Prof. Slonaker of Stanford Uniwersity?

A. Now I have looked over those experiments and I think the experiment was not at all fair. Prof. Slonaker got the same rights

that were meat eaters and accustomed to a meat diet and he gave some of them the regular diet they had been accustomed to, a meat diet, and the others that had long been accustomed to a meat diet, he gave them the diet that was entirely foreign to them that they did not like and were not accustomed to and they did not have very much appetite and they were half starved. Now if Prof. Slonaker was going to make that sort of experiment he ought to make it in this way. If anybody is going to do it he ought to do it in this way. He ought to take for his experiment one species of rats that are meat eating rats and rats naturally and another species of rats that are vegetarian rats. The water rat is a vegetarian rat. The water rat lives down by the side of the river and the brooks and the creeks and those rats are not meat eaters but they are vegetarians so I recommend the Prof. Slonaker will try that experiment again and choose this time a vegetarian rat and not a meat eating rat so that he will not run the chance of spoiling his appetite by a sudden change of diet. Of course, if he had had a Sanitarium cook to help out with substitute it might have been a different thing but he did notmake any such provision for the carnivorous rats and the poor fellows ~~were left~~ lost their appetities and were half starved. The reason is another thing to be said about it you know. I suspect the real evidence of the case is that those meat eating rats had the hysteria and some of them were insane and they were yelling like mad whereas the vegetarian rats were in amore normal and reasonable condition and were not going to run at a breakneck speed around that cage when there was nothing to be accomplished by it. They had more sense you see. They may have hysteria, don't you see. They were evidently extremely nervous and probably neurasthenic and the vegetarian rats were healthier. They had more sense, of course.

Q. Is there much benefit derived from agar agar when it is used in soups and chewed very fine?

A. No, it must be taken in coarse form. Used in the form of soup it ~~has a~~ is no particular benefit unless it is cut in legnths. If it is

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dissolved and used in the form of jelly it is of no particular service.

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Q--How is the best way to prevent taking cold?

A--To check the cold in its infancy. If you are going to check a cold in its infancy you must begin very early. When you find yourself sneezing and you say, "Oh I am taking cold" you are mistaken. You have already taken the cold or rather the cold has taken you and this sneezing is nature's first effort to cure the cold. You have already got the cold and nature has set you to sneezing. What for? The purpose of that sneezing is to give you the exercise you have neglected to take. A sneeze is a kind of fit, a sort of spasm. If you have ever noticed when you sneeze, you sneeze all over. One doesn't sneeze with his nose. If you have a real good hearty sneeze your notice your feet jump up from the floor and every muscle makes a little jump when you really sneeze heartily and that is the way to sneeze so when you find yourself sneezing, you say, "I have taken cold", then do it again. Sneeze some more. Tickle your nose with a feather or look at the sun or do anything you can to make yourself sneeze some more and set your self to shaking. Take a good run, do some kind of exercise that will bring you into prespiration. Then take a cold bath and the chances are ten to one that you have cured the cold unless your resistance is very low. If your resistance is pretty low, the probability is that you will have to go through a little siege. A cold is an infection. We catch cold just as we catch small pox. Some people carry in their throats and their noses the germs which produce colds all the times. There are three or four different germs that produce colds and some people have one or two or three of these with them all the while and so are just on the verge of a cold and all it needs is just the loss of a night's sleep or an hour spent in an unventilated room or a crowded concert room or some such place or some other little thing, an inactive state of the bowels, a big Christmas

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dinner, that is one of the worst things in the world to give one a cold, a turkey dinner or a big beefsteak dinner and gormandizing in any way or abuse of any sort is enough to produce a cold. It is very important to bear in mind that we have colds because we have cultivated a cold, we have lowered our resistance and made ourselves subject to it. The germs that are capable of producing colds are with us all the time and it is simply a matter of keeping the resistance high enough so that we do not get the cold. Taking a cold reminds me of a story I was reading the other day. Many people attribute colds to a draft of air blowing on them. It is possible that people do get colds that way sometimes by the air being chilled. In that case the temperature of the blood is lowered to such a degree that a chill is induced by this lowering of the blood temperature. One may get cold that way because the body resistance is diminished by the temperature of the blood being lowered, but the story I must not forget that. A gentleman was in a large audience room and noticed a window open and a strong current of air was blowing down upon him and he was baldheaded and rather thinly clad and he began to think he was going to take cold and he could not think of but just one way out of it. The house was absolutely full. The preformance was something he very dearly wanted to see and could not give it up. There wasn't any other seat anywhere to be gotten and there was just one way out of the difficulty. He could not get the window closed because the air was necessary, so he rose to his feet. The proceedings had not yet begun. He rose to his feet and shouted out in a loud voice, "Is there a Christian scientist in the audience". Directly a very lean, solemn looking man stood up on the other side of the room, lifting himself up as tall as possible said, "Yes I am a Christianscientist". "Well sir", the man said, "this window is open and I am afraid I will take my death of cold. Will you change seats with me?" The Christian scientist sat down and didn't say another word.

Q--What is the best cure for dandruff and falling hair?

A--The best cure is to keep the scalp healthy by getting out into the sun without any hat on and exposing your head to the air as much as possible. Women are very much less subject to this trouble than men are because their heads are much less

frequently and constantly covered and are not overheated so much. Bathing the scalp with cold water, rubbing the scalp with the tips of the fingers dipped in cold water every day is an excellent thing.

Q--What is Acidone?

A--It is a combination of hydrochloric acid with gluten. Hydrochloric acid is the acid needed by the stomach. The stomach has to have hydrochloric acid in order to enable the pepsin to digest the food. It is the combination of pepsin with the acid that digests protein. Acid is useful for other things besides digestion. It is necessary for the destruction of germs that enter the stomach; it is necessary to control the opening and closing of the pylorus. That is really one of the most wonderful things that happens in the body, is the behavior of the pyorus. Suppose this to be the stomach and here is the pylorus. Normally the pylorus is closed when there is food in the stomach. When the hydrochloric acid which is formed up in this part of the stomach comes down and comes in contact with the valve at the pylorus, the pylorus opens and lets the food out, but just as soon as the hydrochloric acid reaches this part of the intestine, just a few inches below the pylorus, it causes the pylorus to shut up again. So on one side the hydrochloric acid open the door and on the other side it shuts the door. That is really one of the most remarkable arrangements in the human body. I suppose some of you perhaps will imagine that what I am telling you now is theoretical, but not so. This has been actually seen and proven and tested out until it is scientifically known just as it is scientifically known that we have got five fingers on each hand. It is absolutely known that that is true. So hydrochloric acid you see is very necessary, but the hydrochloric acid does something more. Just at this point below the stomach, the bile duct comes in and here is the liver over here and the bile is brought down from the liver, gathered up, delivered through this little duct and just here is the gall bladder. This is filled up with bile in advance of the meal so that it will have a quantity of bile ready to aid in the digestion of food and down behind the stomach is the pancreas that lies down here and here is a little duct that comes from the pancreas right around in here and the pancreas produces the pancreatic juice. Now when the

hydrochloric acid gets down into this part of the intestine it causes the liver and the gall bladder to contract and causes the pancreas to pour out the pancreatic secreting so when the hydrochloric acid is not present, the secretion of the liver and of the pancreas also stops, but more than that, as the hydrochloric acid comes in contact with the mucous membrane of the intestine here, it set free a substance which is absorbed and carried into the blood and brought around to the pancreas and causes the pancreas to make pancreatic juice, so all the way along the hydrochloric acid proves of service in this way in [illegible] in aiding not only stomach digestion but in making possible intestinal digestion. So a person who has no hydrochloric acid in his gastric juice or who has a great deficiency of hydrochloric acid is crippled far worse than thought he had lost a leg, far more crippled than as though he had lost two legs because here is a great vital organ that is crippled in such a way that his nutrition is seriously interfered with and we usually find persons in this condition nearly always find them thin and with a tendency to emaciation.

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Cont. from note book page 546. QUESTION BOX LECTURE.

They say, "Well, doctor I eat a great deal. It doesn't make any difference how much I eat, I don't gain flesh." The reason why is because they do not digest what they eat. The digestive power is lost through the loss of hydrochloric acid. Such a person can generally be helped if it has not gone too far. If there is a little bit of free hydrochloric acid left in the gastric juice that stomach can be improved by proper training, proper diet. It can be improved but if there is none at all, if there is no hydrochloric acid, then the glands of the stomach have probably degenerated so that the stomach is scarcely more than a fleshy, membraneous pouch entirely inert and the foods simply passes in and passes out and the stomach does nothing at all to it. What is to be done in such a case? It is possible for such a persons to be marvelously helped by giving them hydrochloric acid. For years doctors have been giving hydrochloric acid but within the last ten or fifteen years it has been found that the amount of hydrochloric acid that is given is so small in comparison with what the stomach requires that it amounts to practically nothing at all. Instead of giving two or three drops of pure hydrochloric acid one drop would be equal to about 30 or 40 drops of the hydrochloric acid that you get at the store .---------- It needs teaspoonful of muriatic acid such as you would find at the drug store. At least that much is required for the digestion of a meal to do the work in an efficient way so some years ago we began to hunt about to find some way of getting over this difficulty and in the study of the chemistry of foods I ran across a fact the hydrochloric acid would make a loose and temporary combination with protein that is with gluten or albumen of any sort the hydrochloric would combine with it loosely in such a way that it might be taken into the stomach and after getting into the stomach it would be broken up again and utilized so we began preparing what we call acidone. Acidone is simply pure hydrochloric

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acid combined with gluten. It is a rather troublessome process but after all the experimentation we finally succeeded in accomplishing

It is rather a troublesome process but after long experimentation we finally succeeded in accomplishing this thing, and, by taking a heaping spoonful of this food for it is simply food which has had acid already added to it, protein at the beginning of the meal and at the end of the meal it is possible ~~kkx~~ for the lack of hydrochloric to be made good, to be supplied and that is the way in which we use it. (Prof. Cannon of Harvard University found in experiments upon dogs and cats that when he gave the acid protein which he himself prepared at the beginning of the meal and it came down into contact with the pylorus here, it would influence the pylorus and it would control its movements in a very remarkable way.)

Q--What would you take in the way of provision if you were to make a trip of several weeks' duration into a wilderness where there was no chance to get fresh vegetables or supplies except such as are carried on men's backs?

Q--Perhaps some of you will remember the famous Dr. Hall who was an arctic explorer. He wrote two very interesting volumes published by the United States Government, entitled "The Cruise of the Polaris." Captain Hall in this very interesting account of his explorations in the arctic regions gives an account of his experience when he made his dash for the pole. He got nearest to the pole that anybody had ever gotten at that time. In the early part of his book he told how he had found by experience that in order for a person to live in the eskimo region, he must live as the eskimos do, on the eskimo diet. He accustomed himself to that diet and he thought it was a part of the necessary preparation to make this dash for the pole. But in his description of the actual ~~dash~~ dash, that is the thing that interested me, he gave an account of the provisions that he took along when he made that actual dash for the pole when he had to carry the food on his back. The inventory was very interesting. His dinner on one day when the wind was blowing at the rate of forty miles an hour and the temperature was 70 below zero, he sat down on a block of ice to eat his dinner and what was his dinner: Graham crackers. Now that was a very remarkable circumstances I

thought and he ate them without any apology. He did not say that graham crackers was the only thing he had or the only thing he could get in that region but he ate graham crackers and left it right there. Poor Dr. Hall did not get back alive from his last expedition. He died of apoplexy, arteriosclerosis, you see, trying to live on an eskimo diet. He was not old enough to die of arteriosclerosis; he was comparatively young, but he died of apoplexy. So you see it is not a safe thing to do. The eskimox are not very old people. Some people are every little while asking me the question, "What are the eskimo going to do? They can't have cabbages up there, no kinds of fruits and grains and vegetables that we have. What are they going to do?" There is only one thing for them to do. That is, for them to come south where there is something fit to eat; where there is a good place to live. They ought to have moved out of that country a long time ago. They are simply poor, belated decendents of the stone age that are left behind and got isolated and don't know that there is anything else in the world so they are there. The proper thing as I said before is for them to move south where they can live more decently and comfortably. If I were going to take a trip of that sort, I should take along a supply of dried fruit, dried prunes and figs. There is more nourishment in a pound of figs than in two pounds of beefsteak. I mean just exactly what I say. The chemical reports made by experts of the United States Government by Dr. Atwater and others demonstrates that there is more than twice as much nourishment in a pound of figs as in a pound of the best beefsteak you can find. You can live twice as long on a pound of figs as on a pound of beefsteak, more than twice as long. Ten per cent. of the beefsteak is made up of extractives which are poison. Prof. Claude Bernard, a great french physiologist took two groups of dogs and one set he fed on beef tea and the other he gave nothing but water. Those that had nothing but water lived three days longer than those that had beef extract. They both starved to death, but those that ate the beef extract starved to death quicker than the others did because they had the poison in addition to the starvation.

Q—Is not a constricting belt more harmful than suspenders?

A—If a man wears his belt around his waist it is very harmful; if he wears it just above the hips the belt is not harmful. It may be helpful.

Q—Is there any cure for rheumatism of four years' standing?

A—Yes. The majority of cases can be cured. If the joints are very greatly deformed, of course, the deformity cannot be cured but the disease can be arrested the pain can be relieved or removed and the patient generally can acquire useful activity. I have seen that many many times. A prominent lady of Detroit went home just a few weeks ago who had been sick six months in bed when she came here. Within the last two weeks she came up so rapidly that when she went away she was perfectly well. A lady last year was here three months. When she went away she said, "Dr. Staines, I don't believe I am very much better than when I came," but the Doctor could see she was a good deal better. The lady went to Chicago and when she got to Chicago she was going about shopping and after she had been there three days she discovered how much she could do and she wrote to Dr. Staines, "I am mistaken; I am tremendously better and didn't know I was so much better". After she had been home three months she wrote to Dr. Staines saying, "Doctor, I want to tell you, I am perfectly well, that I have not the slightest symptom of rheumatism left. I am absolutely well and I am so enthusiastic about the Sanitarium that my friends are accusing me of being a salaried official of the institution."

Q—Should one who has arthritis or rheumatism eat acid fruits?

A—Certainly. Acid fruits makes the blood alkaline? The acids of fruits are converted into alkalies in the body so are different from other acids.

Q—What is the trouble when the stomach will not stand milk?

A—The trouble is not with the stomach probably. It is more likely to be further down. It is the casein of the milk undergoing putrefaction in the intestines. It is not readily digested and absorbed and so undergoes putrefaction and the poisons produced make headaches and the other mischief that are caused by milk. Many people suffer from milk poisoning. Poisoning by cow's milk is a very very common malady. I have known scores and scores of people to be cured of chronic sick headaches by simply discarding milk.

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Q— Is there anything not injurious that will remove freckles?

A--The only think I know of that will take off real deep old time freckles, chronic freckles, is to take the skin off, the superficial layers of the skin. That is the only way it can be done.

Q--Are dried peaches and apricots as nutritions as those that are canned?

A--Yes, they are quite as nutritions.

Q--Are the yolks of raw eggs as healthy to eat as cooked eggs?

A--Yes they are just as wholesome.

Q--When will the new edition of the Home Hand Book be out?

A--It is in press now and will be out in about six weeks.

Q--Is it normal when the nose discharges a little after a person begins to eat?

A--No that is an abnormal irritability of the nose.

Q--Are you interested in the Swedish sour milk?

A--I am not familiar with it. I would be glad to see a sample of it and to make a study of it. I received a few months ago a sample of sour milk known as "skyr" from Iceland. A doctor up there whom I happened to meet a year ago last winter, knowing I was interested in the bulgarian sour milk, sent me a specimen of skyr. I have made an investigation of the matter and find this skyr is produced by the same kind of germ as the bacillus Bulgaricus which makes the Yogurt butter-milk and I had a letter from the doctor the other day and he tell me that this sour milk has been used extensively by icelanders for more than a thousand years. They prepare it in the fall and keep it all winter and when the cows become dry in the winter because they have no pasture for them, they live upon this sour milk very largely and find it very wholesome. He says they find persons suffering from bad trouble with the bowels, dysentary, diarrhoea, if they are fed entirely upon this skyr for a few days, they are promptly cured, sometimes with a few hours.

Q--At what age would you first let a baby go into sea water?

A--It would depend upon the temperature of the sea water. If it means into the sea, I should say a child ought to be at least five or six years old, for sea water is rather cold for a young child.

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Q--If a man of fifty-one would live closely according to the Battle Creek Sanitarium teachings, how much longer ought his expectation of life to be than the old way on a meat-eating diet.

A--I think he ought to double it anyway. I have more than doubled mine because when I was ten years old, the expectation of my life was less than six years. Nobody expected I would live six years. When I was sixteen everybody know I would not live till I was twenty-one and I did have a good prospect of not living for I had a bad cough and was emaciated for a year and kept right on with my work. Nevertheless. I did not stop at all but I got well and lived through it and since that time my oxonic index has been double proof so I don't have any fears of tuberculosis now for my oxonic index is 200 which is pretty good proof that I must have gone through the mill. When I was twenty everybody said I would certainly die before I was thirty and now I am sixty-two and feel as though my expectation of life was a good deal better than it was forty years ago. I think I have doubled my expectancy at least and I believe anybody who will take pains to take care of his physical resources in every possible way, he can consistently, I think he can work a good deal if he takes care of himself in other ways. Really I believe the average man expends four times as much energy in useless way as he expends in useful activity. He squanders his life and only uses a little modicum of it in useful ways which is a terrible pity.

Q--What is the cause of hot water rushing up into the throat after meals?

A--That hot water is the gastric juice. It is through violent action on the part of the stomach. There is probably a spasm of the pylorus so it does not open freely as it ought to or as promptly, so as the stomach contracts to force the food out, through the lower ppening of the stomach, it comes up through the upper opening instead.

Q--Do you approve of tipping here?

A--We certainly do not. Our nurses and employees are all forbidden to accept tips. If any of them are known to be accepting tips they are relieved from further responsibilities. We shall be very greatful to our patients if they will assist

us in this matter by not tempting those who are too weak to resist temptation. I am sure we have a good many in our family here who could not be induced to take a tip, that would feel insulted if a tip was offered to them, because they would feel the meaning of that tip was a suspicion that they would not do their duty unless they received a bribe. People in that state of mind can be depended upon to do their best without a tip. As I said we do not believe in tipping and we will be very much obliged to our patients if they will assist us in suppressing they very unwholesome and I think a moral practice. I am glad to see that in some states, laws are being passed against this practice, but the public must cooperate in the correction of it by their sentiment against this evil practice. There may be cases in the world where it is necessary and where the bath men and bath women and waiters at hotels, boarding houses, etc. receive no other compensation for their wages. That is a different situation. Here our helpers are all paid just as good wages as they can get anywhere else doing the same service, so there is no reason whatever why they should receive tips. When tips are offered there is a tendency on the part of employees to give the most attention to the people who give the most tips. That is mere human nature and we certainly do not desire to have such a situation of things here.

Q--Do you regard as unwholesome, fresh boiled fish such as the Master gave his disciples for breakfast?

A--Now I am not going to criticize anything the Master did. I haven't anything at all to say about that thing. All I can do is to speak wholly from the scientific and physiologic standpoint. Fish may have changed since that time. I don't know how that is. I do know that in this country and in this town, the fist are degenerating at a terribly rapid rate. Now you think there isn't anything so nice as trout, but I want to tell you you cannot eat the trout without running the risk of eating a cancer along with the trout. (It was discovered a few years ago that every single one of the Government fish hatcheries in the United States was infected with cancer, every one of them. And not only that, but the United States Government in a very friendly way had sent several millions of trout to Australia and when those eggs hatched out, all over Australia where the eggs were scattered

it was discovered that many of the fish were cancerous. The trout suffers from cancer of the thyroid gland. An enormous cancer grows out right behind its gills which is absolutely so identical with human cancer that the best expert cannot discover any difference. Put a bit of that under a misroscope and bring an expert microscopist to examine it and he will tell you it is human cancerwhereas it grew on a fish. Now what the U. S. Government has been doing for Australia it has been doing for all the states in the union and these cancerous fry have been sent out all over the United States and have been placed in our brooks and rivers and trout streams. They have all been infected with these cancerous trout. Now I am not telling you this on heresay. Some of you will remember about three years ago there was a bill brought before Congress and an appropriation of 50,000 dollars was made. The request was made by the fish Commission that this appropriation should be made to enable them to investigate the cause of cancer in American trout and since that time the investigation has been carried forward. Down at Buffalo some doctor has a laboratory where he is studying this questions In the basement of his house he has aquariums and fish of various sorts and he is trying to find out what is the cause of the epidemic of cancer in trout. This thing was noticed. There were placed where they had three pools, one after the other. They found some cancer in the upper pool, a great deal more cancer in the second pool and a large amount of cancer in the lower pool giving very strong ground for suspicion that the disease is infectious and travels by infection from one to another. Yet, so far they have nod found out how to do it artificially but that is not surprising because that has occurred in a good many instances. The Bible tells us about a good many things that were done for those people of olden times because of the hardness of their hearts. The purpose of that feeding with fish was not a lesson in dietetics. No one imagines that. If it had been a lesson in dietetics I am certain that the Master would have led them all back to the garden of Eden or would have referred them to the 29th verse of the first chapter of Genesis in which God said to Adam, when he made him, "every herb bearing seed and every fruit tree bearing fruit which to you it shall be meat." That is God's

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bill of fare that he made out for the human race. That is good enough for me. If some members of the human race have had to have some things introduced and want to share the dietary of the fish or the frog or the serpent or the turkey buzzard, I don't. I am satisfied with God's bill of fare just as he made it out for me. Why should we envy the food of other animals and want to eat everything that every~~thing en~~ creature on the earth eats. Just think of it. The dog is satisfied with the dog's diet. The horse is satisfied with the horse's diet. The monkey is perfectly content with a monkey's diet. Why should not men be satisfied with man's diet? Why should he want to eat everything the monkey eats and everything the dog eats and everything the cow eats and everything that all these other creatures eat, everything the whale eats? There isn't any reason for that. Just consider for a minute what it means. Here is a whale that has seven stomachs to digest fish with; and a cow has four stomach to digest grass with; the dog has one stomach to digest meat with and it is a meat stomach too; a monkey has one stomach to digest fruits and nuts with, a fruit and nut stomach. That makes thirteen stomachs. It takes thirteen stomachs to digest all the things that are digestible, fish, flesh, grass, herbs, fruits and nuts. Now a man sits down at the hotel table looks over the bill of fare and there is everything a whale eats, there are various kinds of fish, there is everything the cow eats, there is grass of various kinds, there is everything a dog eats, meats of various sorts and the bones too are there. Then there is everything which the monkey eats, the nuts and the fruits. There is the bill of fare of all creation. It is all gathered together there on that hotel table, and man sits down there with one puny little monkey stomach and swallows it all, that promiscuous assembly of things, a veritable caravan, sometimes the whole menagerie going down into his alimentary canal. Then he wonders why he has trouble with his stomach, why he has to swallow pills of some kind to help him digest his dinner, why he has to go off and barrow the stomach of a scavenger pig to help him digest his meals. Probably half the people in the country are swallowing pepsin

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or digestive agents of some kind made from a pig's stomach. There is only one animal in the world that can digest the modern hotel dinner and that is the Michigan Woodchuck. The Michigan woodchuck has fourteen stomachs according to Dr. Draper. He has one stomach to spare you see, so the suppposition is absurd that man because he has power to destroy all animals and to execute his will and his intelligence dominates over his instinct, it is absurd to suppose that for that reason he can make various things which are adapted to various classes of animals, make them biologically adapted to himself. He can change the shape of his house and the pattern of his clothes but he cannot change the biologic law that concerns his body any more than he can change the law of gravitation. "But," you say, "man has been eating meat so many centuries, such a long time, he has been eating meat. It must be his nature has changed." Now, all right we will agree to that, but if his nature is changed there ought to be some evidence of it. You go down just about this time to the marshes and you will see some interesting little creatures wiggling around here. Tadpoles they are called. You know they are vegetarians, they live upon vegetable food and when you desect a tadpole, you find he has a very long alimentary canal, a long intestine just as a deer xxxxhas. I will show you a picture of a tadpole's intestine on the screen one of these days. They have a long alimentary canal eight or ten times as long as the body is because the tadpole is a vegetarian. Now a deer has an alimentary thirty times as long as his body; a dog has an intestine only three times as long as his body because he is carniverous. A frog is carniverous. When that tadpole gets to be a frog his alimentary canal shortens up; his alimentary canal is only twice as long as his body, hardly that, about once and a half times as long as his body bexcuse he has become carniverous so you see he sheds his long alimentary canal when he becomes carniverous. Now if this biologic change has occurred in man during these ages, we ought to find the proof of it in his body. He ought to have a short alimentary xxx canal like a dog, but we do not find it so. A monkey has an alimentary canal ten times as long as his body. I was reading sometime ago an article in a magazine by a writer whose name is often seen in print these days and he says a great many things I am sure will make a great many doctors cheeks tingle with shame, that a

member of the profession would be willing to ~~xxxxxx~~ go in print on those things, Dr. Woods Hutchinson, who writes a ~~xxxxx~~ great many good things too and smart things and is a very fascinating writer, so his influence for evil is large when he is ~~x~~ on the wrong side but he takes very strong ground that meat is the food, par excellence ~~the~~ one important thing for human beings to eat. He thinks we ought to feed it even to babies as soon as the baby gets a tooth, ought to begin to have meat sothat he will grow up with proper manly traits. Dr. Woods Hutchinson after a lot of suggestions which were not arguments finally tries to clinch his proof that man is a flesh eating animal by offering the fact I have just stated, that the vegetarian animal has a long alimentary canal and the carniverous animal has a short alimentary canal. Now he says, "Look at man, he falls right into this class along with the meat-eating animals because these meat-eating animals have long alimentary canals only four or five or six times as long as the body." Man has an alimentary canal thirty feet long. Man himself is six feet long. Divide thirty by six and we have five so man's alimentary canal is five times as long his body. That put him right down along next to the dog which has an alimentary canal three times as long as his body. That proves that man is a meat-eating animal you see, absolute positive proof of it by biological facts. But here is the trouble, when Dr. Woods Hutchinson measured the dog, he measured him from the end of his nose to the end of his back bone. But when he measured the man, he measured him from the end of his nose to the end of his back bone and included his hind legs also and that made him twice as long as he really is, for from the standpoint of comparative anatomy, man is only three feet long compared with the sheep, the lion, the chimpanzee or these other animals measured in the same way, we have to put him down on all fores, then he is only three feet long, but he is only six feet long when he stands on his hind legs you see. Now that kind of argument is the way in which these meat eaters ~~xxxxxxxxxx~~ attempt to prove that man is a carniverous animal. When we reduce man to his proper height, three feet long and divide thirty by three, we have ten you see and that puts him right along beside the gorills, the chimpanzee, the baboon and all the other higher apes that have alimentary canals of the same proportion. These creatures have stuck to the original bill of fare that God gave to them and to their

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relativex man. They have adhered to the original bill of fare, so if a man wants to find our now a days what to eat whether it is to eat or not to eat beefsteak muttonchops and so forth instead of going to the college professon or to Dr. Woods Hutchinson or anybody else of that sort to learn, he should go to the woods and sit at the feet of some old chimpanzee or with some good old gray haired gorilla and watch him to see what he eats and then he will find the right way in diet. You cannot find it by any ~~way~~ study of chemistry. There is not one leg left for the meateater to stand on when it comes to scientific argument. The facts are, that the statement made by old Prof. Cuvier are way back one hundred years ago, that man in his biologic nature is like the monkey and the chimpanzee and a fruit eating animal still stands! It never has been upset but I must let you go. I thank you for your attention.

End.

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Stereoptican Lecture at the Sanitarium Parlor, Battle Creek, Michigan,

Thursday, May 8, 1913 at 8 p. m.

by

J. H. Kellogg, M. D.

In these days the universal complaint about the high cost of living, I think it is very important for us to consider the great truth which lay in the statement by Mr. Hill, former president of a great railroad in the northwest, that it is not really after all the high cost of living that troubles us, but it is the cost of high living. Now I am led to make this remark by the question asked the other day about the comparative cost of food stuffs, One of the questions we had in the Question Box on the comparatice cost of non-flesh foods and flesh foods. So here is a table prepared by Prof. Hutchinson of England, an english authority on the subject of diet. He has prepared this table to show the amount of energy,--that is, the amount of food value, the amount of food of body building material that can be got for one shilling in some typical foods. That is, these lines here represent the amount of energy in the form of different food stuffs, the amount of food in the form of different food stuffs that can be bought for a shilling and you see how it is here. For instance, bread 10,500 calories. That is enough for five days. For a shilling one can buy bread enough to provide him with all the nourishment he needs for five days for one shilling,--that is, twenty-four cents of our money, whereas the beef they can get only less than three ounces, 100 grams, about 1000 calories. So you see you can get about ten times as much bread for a shilling as you can of meat. Of eggs you can get the same amount of nourishment in the form of eggs for a shilling as you can of meat. Of fish you can get about 1000 calories, just a little more than you can of beef. When you come to cheese that is a good deal cheaper, 2500 calories or one quarter as much as bread. On the other hand, here are peas. Of peas you get 9000 calories, whereas of eggs you only get 1000 calories. You get nine times as much food

in other words for a shilling in the form of peas as you can in the form of beef, eggs or fish. So you see when we come to other foods, potatoes they are not quite so cheap, almost 4000 calories, four times as much as beef; and milk still a little more expensive, three thousand calories, three times as much as beef. Apples cheese and butter furnish just about ~~as~~ three times as many calories for the same amount of money. Now this is a matter of very considerable consequence to people who are studying economics and are interested in the subject of diet from an economic standpoint and it is well worth considering. When we consider the enormous waste of food by the feeding of animals and then eating the flesh of animals, we see at once that as our country becomes more densely populated, the only hope for sustaining a very large population is in the adoption of a non-flesh dietary. Meat is rising in price, not because the butchers have formed a trust, not because they have got a corner on beef, but because at the present time the cattle population of the United States is very much smaller than it was ten years ago in proportion to the total population. The cattle population is diminishing very rapidly while the human population is increasing, and, as cattle diminish in number in proportion to the people, necessarily the price of meat must rise and the reason for this is, that human beings have been encroaching upon the domain of the cattle. Those broad plains over which the cattle roamed when they had free pasturage have now been divided up into farms and dry farming has driven the cattle off.

When I was in Texas a few years ago, I was passing through a part of the country with an automobile and a gentleman pointed out the land to me all around as being good cotton land and I said to him, "How much is it worth". "O," he said, "well when we get water on it, it will be splendid cotton land and then it will be worth considerable. At the present time it is only worth about four or five dollars an acre." "Well," I said, "you raise cattle on it I suppose." "Oh no," we have no great herds here any more. They have all gone away, no great herds except in a little corner of Texas. The great herds we

used to have here, we cannot afford to keep any more because our land is too expensive. When land is worth four or five dollars an acre, you can't afford to keep cattle on such land as that." "Well, how many acres does it take to support an animal here." "Well," he said, "it takes twenty acres to feed one steer". So you see there was some truth in his statement. The land without water is so unproductive that it takes an enormous amount of pasturage to take care of a comparatively small herd of cattle so as the pasturage diminishes, the price of meat must rise. It will continue to rise and the only hope for maintaining a large population is in the adoption of a non-flesh dietary. The American people are finding it out and are eating less meat every year. There has been a drop of more than 10% in the consumption of meat within the last twenty years so we are gradually getting sensible. I hope the Battle Creek Sanitarium has had something to do with stopping the market for meat. We are certainly doing our best in that direction.

Some years ago I had a little tract on the subject of pork published and a lady up in the northwest got one of these little tracts and she put a copy into every house in town and the result was, she put the butchers out of business. The butcher declared he could not sell enough pork to make it worth while to keep it and he went out of the business. I heard from somebody who lived in the neighborhood who was telling me about it, how this lady canvassed from house to house and lectured every body about trachina tape worm and all the other horrible things, about the hog as a scavenger beast. And I asked one lady why she eating port and she said, "Why, after I heard about it I could not stomach it". That is why I am telling you some of these things so when you get home you will find that affect what you come to face some of those horrible mixtures you used to think were danties. I remember it very well, a lady who after spending three or four weeks with us here went home and she said, "I have got to go home, I can't stand it. This bland diet, I can't get any appetite for it, I have got to go home where I can get a square meal." After she had been at home for a couple of weeks her husband sent her back. She was simply neurasthenic and I knew she would be back and her husband got

along better alone. After a few months she got well and went home. Three years afterwards I happened to be in her town and I called at her home as I had to wait for a train a few moments. I was looking around for something to do and I happened to think of these good people and I called at the house to see how the lady was getting along. I knocked at the door and a maid who came to the door said, she was not at home. I asked when she would be back. "Well," she said, "she is not far away. If you step around to the back of the house I think you will find her". I stepped around there and beheld this lady up in the top of a cherry tree picking cherries. Her cheeks were as rosy as the cherries she was picking too. She was the picture of health and really made a very pretty picture in that cherry tree. As she came down, I said, "I suppose you were very glad to get home where you could get a square meal again." "Oh doctor!" she said, "don't mention it, don't mention it! I tell you when I got home I just could not stomach it,—the things I used to eat and I wondered how it was possible I had ever been able to swallow such horrible things as we had upon the table and I had them cleared right out. I had the pepper sauce, mustard, the pepper box all carried out and buried in the garden." "Well how did your husband get along". "Oh," she said, "I brought him to it". You see she knew how to do it. Well it was only turning the tables upon him because he had brought her to it in the first place. That is what needs to be done with some people. They need to be put under circumstances where they cannot get anything but just simple food. That is why we rule certain things off the premises and do not have any beefsteak in the dining room, do not have any smoking room.

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That is why we don't have any beefsteak in the dining room. That is why we don't have any smoking room. That is why we do not serve tea or coffee so as to establish an atmosphere in which there will be no temptation, in which people can have a change to make the discovery that in a few days the appetite for those evil things drops off and they find themselves quite contented with the natural and simple products with which Nature has furnished us. Now, I want to call your attention to some interesting things and the foods which it is immediately worth while to know and to remember. People generally suppose that meat stuffs are so very nourishing, so highly nourishing that we must have them in order to make certain that our bodies are well fed. I suppose that the majority of people imagine that without meat a meal is only a lunch not really a good sound, solid, substantial meal unless there is meat in it so I want to call your attention to the nutritive values of some of these foods and the contrasts. For instance, here is porterhouse steak. It stands pretty high in the list of animal foods. In a whole pound of porterhouse steak there is only 1100 calories. That is about two-thirds of a portion, you see to an ounce. Now some things people consider very dainty and very nourishing such as brains, beef liver and things of that sort. Even dried beef as less than 1100 calories to the pound, you see. Head cheese has 1700 calories to the pound because it has a large amount of fat in it and that fat of course counts up calories very rapidly . Bacon is dry and has a large amount of fat in it so it is high in calories, 2,000 to a pound but the ordinary foods, chicken for example, has only 500 calories to the pound. Just think of it. One-third of a pound of bread,

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we will see pretty soon has more food in it than a pound of chicken. Now let us notice some of these things. You see chicken has only 500 calories. Beefsteak and all the meats here including veal cutlets, etc., have about 1000 calories to the pound. Then we come down to fish and fowl. Here is turkey, 1000 calories. Goose has 1500 calories because it has so much fat. The goose is killed when it isvery fat and the large amount of fat raises the nutritive value but now we come to fish. Codfish for instance, has 325 calories to a whole pound. Three slices of bread have as great nutritive value as a whole pound of codfish and mackerel. The same thing is true of mackerel, 365 calories and salmon about twice as nourishing because of the large amount of fat in the salmon and the oyster, 235calories to the pound. Just think of it, 235 calories. Now an ounce of grape juice has 24 calories so ten ounces of grape juice have more food value in them than a whole pound or a pint of oysters. Just think of it. Milk has 21 calories so you can readily see that three quarters of a pint of milk has as great food value as a pint of oysters. Milk, measure for measure is more nourishing than oysters. Oysters are chiefly water and germs. Beef juice has only 115 calories in a pint. Now think of that. Why, there is as much nourishment in half an ounce of almonds, just a little bit of a handful, a tablespoonful of almonds or of pine nuts has as much food value as a whole pint of beef juice. Notice this is not beef tea but beef juice, the juice that is squeezed out of the flesh, not the beef tea or bouillon. That has very much less yet; but beef juice. Now remember some of those. Chicken and fish have on an average about 500 calories to the pound. Oysters have half as much and beef juice about one quarter as much and as beefsteak and the more solid meats have twice about half as much as fish and chicken whereas beef juice has about one-tenth the nutritive value of the beef itself. Now look

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almonds and the things we consider to have very little nutritive value. Look at these fruits here for example. Here are apples. Apples pound for pound have a higher nutritive value than oysters. You remember the oyster was 235. A pound of apples has a nutritive value of 290 more than the same quantity of oysters so you see there is very little nutritive value in the oyster if an apples is more nourishing. A good, big apples pound pippin, for example, is worth more from a food standpoint, from the standpoint of energy, supporting the bodily energy, more than a pint of oysters. How much does the apple cost you? Perhaps you get an apple for five cents. A pint of oysters, well, you know what it costs, I don't. Somebody says fifty cents a pint. Now we come to the banana. Why the banana is worth twice as much as the same weight of oysters. You remember codfish was 665 and the banana weight for weight is worth more then codfish or mackerel or trout, any of those fish. Here we come to blackberries, more than oysters. Cherries, 365 calories to a pound of cherries so a pint of cheeries is equal to a pound of mackerel or a pound of codfish. Just think of that. We have been accustomed to look upon fruits foods as mere luxuries. They are really highly nourishing foods. When we came to such foods as the date its nutritive value is 1600 calories to the pound. A pint of beefsteak has only 1100 while a pound of dates has 1600 calories. A pound of dates is worth fifty per cent more in other words than a pound of beefsteak from a food standpoint and that is why the Arab is able to travel such long distances and to work so hard and endure so many hardships under a tropical sun and have the most difficult, distressing and trying circumstances on a simple diet of dates. Here are fresh figs, 381 calories while dried figs are 475 calories about the same as dates, very highly nourishing. Grapes, think of it is worth more than a pound of fish in nutritive value. A pound of fresh grapes has more than

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a pound of fish. The same thing is true of huckle berries. Even the lemon has some little value and a musk melon is worth almost as much as beef juice. Beef juice has only 115 calories to the pound and a musk mellon has 90 calories to the pound. Here you see the nectarines and the oranges, 240 calories, worth more than oysters. Oysters, remember were 235 calories and oranges are equal to oysters. Pears are worth more. Persimmons, Pineapples, plums, prunes, dry prunes, 1400 calories worth more than beefsteak you see. A pound of dry prunes is worth more than a pound of beefsteak in paying power. Here we come to raisins, 1500 calories to the pound and the very best beefsteak and mutton chops or any of those things have only about two-thirds the value of a pound of rains, the same weight of raisins. These things are worth remembering. Here are strawberries. A quarte of strawberries is worth more than a quart of beef juice but people think beef juice is so wonderfully nourishing. It is important my friends to know these facts because with these scientific facts in your minds you must have confidence in the sustaining value of these simple products of nature which God intended for us to eat. He never intended for us to the slaughter house to get our nourishment. He never intended we should take a life of another animal in order that we ourselves might live and the watermelon, there is even a great lesson in that watermelon, 140 calories while the beef juice has only 115. Now just think of it. There is more food value in a watermelon than in beef juice. You would better than have a big watermelon than a whole gallon of beef juice. The beef juice will rot in your interior while the watermelon will not. The watermelon might make a little fermentation perhaps or a little gas if you ate too much of the pulp. It might make some gas in the stomach but that would be harmless but the beef juice rotting, decomposing and putrefying would make deadly would

poisonous ptomaines. Now look at the vegetables and other things we despise. On the whole the vegetables have a smaller nutritive value than the fruits. There is not a single vegetable that has the value of beets or raisins. There is scarcely a vegetable here that has the value of grapes. Here is one, green corn is about equal to grapes you see. Here is the potato, 570 the most nourishing of all the vegetables. A pound of potatoes is worth more than a pound of veal or more than a pound of chicken or a pound of codfish or a pound of mackerel or any of the fishes you see. A pound of potatoes, 570 calories. That is sweet potatoes and the Irish potato almost 400 calories, 385 which is more than Codfish or mackerel, almost equal to chicken yet people look upon these things as rather filling than nourishing but you see they have a high nutritive value and here is spinach. Things we look upon as being simply filling , simply roughage and yet spinach is worth more than beef juice. Don't forget that, that a pound of spinach has the nutritive value higher than that of beef juice of the same weight or quantity. Here is squash. A pound of squash is equal to a pint of oysters. That is worth remembering too. The oyster is not a nourishing food and the tomato even is equal to beef juice. Here are turnips. These coarse vegetables that we think have so little nutritive value are you see, quite equal and indeed superior to some of the foodstuffs of animal origin that we consider so very valuable but now look at the cereals and the legumes. Here we begin to find something worth while. Look at the high figures here. Hardly one on the list that is below 1600 calories to a pound which means 100 calories to an ounce, a whole portion to an ounce. Here are beans, frijoles which are simply a variety of beans and lima beans, peas, lentils, soy beans, barely, buckwheat, cornmeal, oatmeal, way up, 1800 you see, more than 100 calories to an ounce. Rice, flour wheat flour,

patent flour, spring wheat flour, all of these are 1600 or above. There are only two or three. Here are green peas which contain a large amount of water and of course, the nutritive value is lower and here are string beans that have a nutritive value quite low yet you see the green peas from the garden have a nutritive value practically equal to chicken and higher than fish so you see you can abolish all these unwholesome foods from the table, abolish meats of every description from the table and in fruits, grains and vegetables alone we will find foodstuffs entirely capable to sustain life, entirely capable of supporting strength and energy without appealing to the honorable animal kingdom at all but some of you who are quite wise on the subject of diet will say, "O, but we don't get protein enough, we must have meat for protein." Now let us look at that for a moment. Here is protein in beans for example, 22% of protein in beans. Now 22% of protein in beans means that you have about 30 calories to the ounce of protein, 22%. Then you examine beef you will find that beef has less than 22%. Now-less Beans are 18 to 22%. Now look at peas, 24%, lentils 25%, soy beans 33%. Why, my friends, none of the meat you eat has so much protein as that. Here is a pound of beans you see that contains as much protein as a pound of meat contains, as much protein in a pound of beans as there isin a pound of beef; Then in addition to that, there is as much starch as there is in a pound of bread and so we have in a pound of beans, a pound of beefsteak in a pound of bread and so we have in a pound of beans a pound of beefsteak and a pound of bread. We have the two together in a pound of beans and it costs you three cents or four cents, we will say, so if you want to get cheap beefsteak, the very finest kind, just buy it in the form of beans because in the form of beans you can get a pound of beefsteak for a cent. Well, we will say five cents if the beans cost that much. That will be at the

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rate of $3.00 a bushel. That will be about $3.00 a bushel and that would be a very high price for beans. Beans can often be bought at very much less than that but suppose you pay five cents and you get a pound of beefsteak and you get a loaf of bread right along with it. In the form of beans for the price of one loaf of bread you can get a loaf of bread and a pound of beefsteak thrown in for nothing don't you see so we don't have to go to the butcher shop to get food that is nourishing. The same thing is true of lima beans and when you come to peas, lentils, soy beans, why, we have more than a pound of beefsteak in a pound of each of these things and here is 59% of carbohydrates in lentils, equal to a pound of bread. Then here we come to cornmeal, 8% of protein, oatmeal 16%, wheat flour, 13%, almost 14%. Why, in a pound of wheat flour there is 2/3 as much protein as there is in a pound of meat. Now you remember beans were 22, porterhouse steak is only 19, sweetbreads only 16, dried beef has 39% but that is because the water has been extracted but the total nutritive value is not as high as the ordinary beefsteak notwithstanding water because of lack of fat so with the others. Here is chicken. Chicken has less protein than beans. Here is fish, 15, 10, 16, 20. They run along less than peas or beans or corn. Fish contains less than wheat you see. Graham bread contains more protein than mackerel does. The oyster you see has only 6% of protein, very little indeed. Now we will go along and look at some of the other foods. Here we come to foods that have the real nutritive value. Here we have something that is rich in food value, nothing to be found in the whole animal kingdom compares the nutritive value with nuts. Look at these figures, 3,000 calories to the pound. The average of nuts is more than 3 times that of animal proportion of it to a higher level of health and efficiency and this is the highest

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The average of nuts is more than three times that of animal food, more than three times. You remember beefsteak was only 1100, dried beef 950, chicken 500 and a pound of nuts has six times the nutritive value of a pound of chicken. Now, how much would you have to pay for a pound of canned chicken. About 75 cents wouldn't you for a pound of pressed chicken. I was told by a gentlemen the other day he had to pay seventy-five cents for a can of pressed chicken. I have not priced it myself but suppose it is fifty cents or even twenty-five cents. Now here are almonds that you can buy at wholesale in the market at thirty-five cents to forty cents a pound. If you are going to buy blanched almonds you will have to pay seventy-five cents a pound because you will pay the retailer and he has to make his profit and you have to pay for the labor of taking off the skins, blanching, etc. but if you buy at wholesale you can get them as low as twenty-eight cents a pound, that is the shelled nuts but look at these figures here. We come down to pine nuts for example, almost three thousand calories to the pound in pine nuts. If you buy pine nuts at wholesale you can get them at seventeen to twenty cents a pound. See the beefsteak and pine nuts and in almonds and in beechnuts. You have all the beefsteak there is in beefsteak and then you have two-thirds or three-quarters of a pound of butter in addition. Butter contains a good deal of water and a variable amount but you have three-quarters of butter in a pound of nuts let alone with a pound of beefsteak and you get it both together for less than the price of a pound of butter and for less than the price of one pound of beefsteak so for half the price of a pound of butter or of beefsteak you can buy a pound of butter and a pound of beefsteak in the form of nuts so you see it is evident that when it comes to economy even at the present time, when no special attention is given to raising nuts, when

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any other ...

cultivation at all for these nut trees will take care of ...

are very few pests that affect them and when they once get started they are so hardy they will readily grow. There is another very interesting question in connection wtth this matter of foodstuffs that is well worth considering and that is not simply the comparative cost but the comparative digestibility, what we have to pay out from our pocketbooks is of less of importance. What we have to pay from out pocketbooks is far less important than flesh foods. Now suppose that every mountain which would not grow any kind of grain crops was covered with nut trees, every mountain upon which pine nuts would grow was covered with nut pines that would produce these most delicious foods. Suppose we have all of our waste land covered over with nut producing trees. Suppose that all the railroads over the country were lined on either side with nut producing trees and all the highways and the roads of the country were lined with nut producing trees, why, my friends, these waste lands alone would produce food enough to feed the entire population of the United States and have a whole lot left over to send to our hungry neighbors across the water so we are not going to starve to death right away if we will remember the great value of these tree crops. There was a very interesting article written on this subject in one of the magazines a few months ago that I wish everyone of you might read. It took the matter up in detail and showed the importanceof encouraging tree crops because the acres of land set out to walnuts, or hickory nuts, or pecans, or chestnuts or any other kind of nut bearing trees will produce about ten times as much nourishment as can be produced upon that land in any other way and requires after the first few years absolutely no cultivation at all for these nut trees will take care of themselves. There are very few pests that affect them and when they once get started they are so hardy they will readily grow. There is another very interesting question in connection wtth this matter of foodstuffs that is well worth considering and that is not simply the comparative cost but the comparative digestibility, what we have to pay out from our pocketbooks is of less of importance. What we have to pay from out pocketbooks is far less important

little monthly, the report of the experiment stations of the United States
called The Experiment Station Record. The monthly bulletin of the United
States Government Experiment Station, they have republished these facts that
I am giving you and varified them so it is worth while to take not of them.
I ought to add another fact in relation to beefsteak and that is, that
beefsteak stimulates the body to throw off more energy than it supplies to
the body, that is, if a pound of beefsteak supplies to the body 1000
calories of energy, the amount of energy which this pound of beefsteak compels
the body to expend is more than a thousand calories of energy so you make
no gain. You actually get a loss because this protein stimulates the cells.
Protein in the form of beefsteak stimulates the cells of the body to break

than what we have to take out of our constitutions. Now it has been shown
by experiments by Prof. Zuntz of Berlin and by others that the foodatuff we
find in beefsteak for example, requires us to expend 40% of all the energy
we get back from this kind of food in the work of digesting it. In other
words, suppose a pound of beefsteak furnished to you a 1000 calories of food.
To digest that pound of beefsteak you have to expend 400 calories of energy
leaving you only 600 calories with which to nourish your body whereas if you just
take in instead of a pound of these vegetable products and then a pound of
carbohydrates for example, it is practically all gain to the body and no less
for the amount of energy required for the digestion of starch is so small that
it cannot be measured by the physiologists. The pysiologists cannot make out
that it takes any expenditure of energy whatever to digest carbohydrates wheras
it requires according to Prof. Zuntz forty per cent. of all the energy we
get out of a pound of beefsteak to digest that beefsteak. These facts were
published by Prof. Zuntz a number of years ago and within the last few years
have been republished by the United States Government in that very interesting

down faster than they build up and that is the reason why you can never fat a pig on beefsteak, why aman can never get fat on beefsteak. If you want to fat a pig feed him corn and not beefsteak. If a person wants to gain flesh he must eat carbohydrates and not protein because protein causes a throwing off of more energy than it supplies to the body. Now let us look at some of these foodstuffs as shown on this table prepared by Dr. Beaumont in his famous experiments upon our Alexis St. Martiøn more than 100 years ago. Alexis St. Martin was a poor hunter who had injured himself by the discharge of his gun loaded with duck shot as he was getting out of a boat. Going on a hunting expedition the gun was accidentally discharged and the whole charge was received from a glancing direction of Alexis' body and tore away a portion of the interior walls of the stomach as large as the hand so it was possible to look right into his stomach and see his ~~mmmm~~ lungs acting and the interior of his stomach. Everybody gave him up to die but he refused to die and in healing up the edges of the wound in the stomach grew fast to the edges of the wound in the skin and so left a permanent opening through which one could look right into the interior of his stomach and Dr. Beaumont gave him foodstuffs of various kinds and put some of the foodstuffs into the openings in his stomach and watched the digestion and he found when he ate rice in an hour it was gone whereas/when he ate roast pork it was five hours and fifteen minutes before it was gone and that explains why the lumbermen is so fond of roast pork.

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and that explains why the lumberman is so fond of roast pork. He says it sticks by the ribs. That is exactly what it does. It stays right up there in his stomach under his ribs and doesn't digest. That is what people call hearty food. The proper definition of hearty food is"hard to digest food." Now when food stays there in the stomach it doesn't do any good. It is doing harm. It requires energy on the part of ~~the part of~~ the stomach and the liver and energy so long as it stays in the stomach and when it gets out of the stomach and gets into the circulation it begins to do you good and it takes roast pork, salt beef, lean beef, fried, beef and these other meat things, it takes these things four times as long as it does rice to get into the blood and get to doing you good. Some people think oysters are such a fine thing yet it takes three hours for a raw oyster to get out of the stomach. I suppose the poor thing fights for its life for quite a while. It struggles to keep from being digested and so delays things probably but a stewed oyster takes longer yet you see because it is toughened by the process of stewing and the fried oyster or the devilled oyster, there is no telling why it does get out. I don't think such bad things were eaten when Dr. Beaumont was making these experiments so you see so you see the nutritive value of rice is not only twice as great as for a pound of rice as the nutritive value of a pound of beefsteak for it only requires one quarter of the time for digestion and now multiply one and a half by four and you have six. The energy required to digest meat is six times that required to digest an equivalent amount of rice so you see we have here a very strong argument. I don't see how it can possibly be met. First it costs the pocketbook only about a quarter as much for non-flesh food as for flesh food. Then it costs the body only one quarter

as much for the digestion of that non-flesh food ~~s~~ber you have purchased it so it is altogether the cheapest thing in the end and besides that we have said nothing about the diseased produced by the flesh food, the damage to the body, the inconvenience to the bodyp we have said nothing about that. Here is something about chicken pie from "The Magnet". This was in a little book called The Magnet by Henry Rowland published by Dodd, Mead & Company. It is a story about a captain on shipboard who had his charming daughter with him and a young fellow who came to visit her so he was going to cook a dinner for her and prepare chicken pie and he had a good deal of trouble to make it and various things fell into the pie that did not belong there and so on and he finally came to cut the pie or the lady did. The steward struggled manfully to cut the pie but as the book says, "it refused to give up the dead". That is the interesting thing about. Mr. McClure called my attention to this passage. It runs in his line of business. He said he had found something so funny he must show it to me fearing that I might not have observed the passage.

I remember a story told me some time ago ~~xxxx~~ by a friend of mine who had a little boy who had never seen a turkey or anything of that kind on a table. He went to visit a neighbors and they ~~knxk~~ asked him to stay for supper and he stayed. They happened to have roast turkey for dinner,---It was dinner rather than supper--- and he saw a dead beast (bird) on the table for the first time in his life, a little fellow about seven years old and he said to the lady, "That looks like a dead turkey". "Yes," said the lady "it is a roast turkey. Will you have a piece." "O no," he said, "O no, I don't eat dead turkeys." It was a very horrible idea to him, so the lady in order to supply him with something raked out from the posterior part of the turkey some of the stuffing of the interior in the usual fashion and passed it to the boy. He looked up to her with great amazement in his face and some indignation. "What," he said, "would you have me eat what the turkey ate." We don't stop to think how perfectly horrible

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and disgusting these things are that we do at the table. We see a dog gnawing at a bone and growling over it and it looks very horibbe and ferocious,yet at the table we see perhaps a person sucking the puny thigh of a thrush and we don't think anything about it. He thinks that that is a nice bird that he is eating. A lady asked me a day or two ago if she just couldn't have a bird. She just wanted so have a little meat and she said, " Oh, I do so dearly love a bird." Now, I said, "what kind of a bird would you likeL" "Oh, any kind". I said, "I have a very fine parrot up at my house. He is a nice talker, would you like him?2 "Oh, I wouldn't like a parrot" she said. "Well, why not, they are clean birds they don't eat dirt and rubbish and things of that kind." The grain eating birds are all together the sweetest you know. The canvas back duck is the choicest of all ducks because it is vegetarian and the vegetarians are all supposed to be much sweeter than the carnivorous birds. Just notice the difference between a dog and a lamb. A dog has a dog smell about him while the lamb has a sweet breath. The dog and cat are likely to have a very bad breath if they are meat eaters. Most ladies know better than to let their cats eat mice if they catch them. They feed them on bread and milk if they want them to be healthy and keep them in the house. Here are the ordinary meat foods, the most common ones that people use and look at these records here. Beef juice 7 1/2 calories to the ounce, beef soup only 8 calories and we think beef soups are very nourishing, 8 calories to the ounce. Now do you know that apple juice has 17 calories to the ounce. Apple juice is worth twice as much from a food standpoint than beef soup. People think of these nourishing things. They are not nourishing. They are the very opposite of nourishing. I did not prepared this table. This is copied from a U. S. Goverment bulletin prepared by the U. S. Agricultural Department by Dr. Atwater and colleague from experiments made in their laboratories.

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Then we come to bouillons supposed to be so very nourishing and strengthening, you know if you have been sick and have had a fever or anything and you are convalescing you must have some meat broths to build xyou up. Just look at that three calories to the ounce. Grape juice has 24 calories to the ounce and milkhas 21 and even skimmed milk has 15 and buttermilk 11 calories, almost four times as much food value in a pint of skimmed milk as in a pint of the very best bouillon, four times as much in skimmed milk as in bouillon. Why, you think a person is starving to death if you feed him on skimmed milk but the skimmed milk is worth twice as much as beef juice and four times as much as bouillon. Now look at trout. Trout has only 15 calories to the ounce. A pint of apple juice is worth more than a pound of trout and think what you have to pay for that pound of trout as compared with the fruit juice and here is chicken 19 calories only. An ounce of bread has three times as much food in it as chicken so a pound of bread has three times the value of a pound of chicken and so with all the rest here. Lobster you see has nothing in it practically at all. It is not worth while to run the risk that one runs in eating stewed lobsters when it only has 9 calories to the ounce in it. Lobsters only have half as much as milk, scarcely more than half the value of milk. Whole milk has 21 calories to the ounce in the milk and the oyster has 11. Just think of that the next time you think of oysters being particularly nourishing. Well now these facts are really worth considering. I trust they will be remembered but there is something else we must consider besides nutritive value. Bulk is quite as important. At the International Congress on Hygiene at Washington last fall there was a doctor came forward with a paper to discuss food values, cheap living and so on, Dr. VonNoorden of Vienna one of the great physicians of the world whose name is perhaps more eminent and famous that that of any other physician living at the present time.

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Dr. Von Moorden stated very impressively: It is very necessary for us to consider other things as well values, as well as economy, money economy in the selection of our food. Bulk is a matter of consequence as well as food value and he laid great stress upon that thing, that in general there was neglect to take enough bulk in our food and we need to eat on that account, not simply foods that are completely digestible, concentrated foods but we need to eat a large amount of roughage. We should take with our food every day not less than one ounce of indigestible material. We require at least one full ounce of indigestible material and that one ounce of indigestible material when it swells up with water will make a weight of eight or nine times its original bulk. I have selected here a table of fruits to show you the comparative amount of cellulose which they contain. Of all the foodstuffs we eat huckleberries contain the most. Cellulose is the one thing that gives food its great bulk. Animal food does not contain any of this indigestible bulk -- or -- roughage. that we call cellulose. It contains none of it. It is found only in vegetable foods. Animal foods in the form in which we eat them are entirely digestible in a perfectly healthy stomach. As a matter of fact, they are never completely digested but they are completely digestible if the digestive organs did their duty. There are some remnants always left behind undigested. Meats are always digestible. Why? Because they have once been digested, passed through the stomach of the animal before so they are digestible. We do not complain of animal foods that they are not digestible. That is not the greatest fault but it is what happens after they are digested and what happens to small portions that are not digested. Vegetable foods are less digestible because they contain a larger amount of indigestible material and so taken as a whole, they may be less digestible but that is all the better for us because we need that kind of food and huckleberries contain a larger amount of cellulose than any other food known.

There is no food, fruits, grains or vegetables and of course, animal foods must also be included in the list, no food which contains as much cellulose as is found in huckleberries., You see the raspberry contains only a little more then half as much as the buckleberry. The blackberry considerably less than half as much, cranberries only about one-third as much as huckleberries. and gooseberries one quarter as much, pears and apricots only one-fifth as much. Prunes are quite laxative but they contain only one-sixth as much cellulose as is found in huckleberries and the oranges, strawberries, raisins, grapes, and down to the banana which contains the least cellulose of any food so the banana is regarded as a constipating food. It is not constipating in a positive sense but only has no tendency to stimulate the bowel. It is not a laxative because it contains no cellulose. The apple has very little. The peach contains very little. We get down below and gooseberries and figs and find very little cellulose. The cellulose is chiefly found inthe seedy fruit and in the huckleberry because the huckleberry has such a thick skin and so much seed in proportion to its size. That is the reason why the huckleberry contains so large a per centage of cellulose. If any of you wish these tablesyou can get them from the Dietetic Department. Here are vegetables you see, Dried peas contain the largest amount of cellulose, 28%, a very large amount you see, more than a quarter. Cabbage has 9%, parsnips 8%, turnips 6%, baked potato has a small proportion of cellulose comparatively. Asparagus has even less than baked potato. Here is spinach, cauliflower, tomatoes. Vegetables in general have a larger per cent. of cellulose than the fruits have. Take them in general and the dried peas and they have a very large proportion of cellulose. Here is a picture showing the different kinds of starch. Here the stach is broken up in the process of cooking.

Here is potato starch. Thenstarch of the dasheen is the smallest starch known. The dasheen or taro has the smallest starch granule known. This shows a slice of potato in its raw state and shows the starch grains enclosed, each groups in a little cell and this is the same potato cooked. The starch grains are softened and spread out. Here we have cereals, The large amount of cellulose. Sterilized bran has 40% of cellulose, pretty nearly half cellulose. Cooked oatmeal has 10%, peas 5%. You see cereals do not contain such a very large proportion of cellulose so if we want to have these cereals laxative we must add bran. The objection to ordinary bran is that it is so dirty. It contains so much weevil, dirt and filth that is separated in the from the grain in the process of cleaning. It all goes in to the bran in the ordinary milling process but we prepare bran for use at our table by first selecting the grain, then cleaning the grain finally brushing and lastly washing the grain, then gridding and separately the bran. Then the bran is sterilized by high pressure in a retort but I think I have told you enough about scientific things about food for tonight. I hope you will remember some of it. Here is a little passage by a from Mrs/Cannon a gentlemen who has lived in the far east. He called attention in one of the medical journals to the fact that this buttermilk diet had been adhered to by the people who lived in Bulgaria from the most ancient times and we have found recently that this same material is used in Iceland and has been used there for a thousand years. I received a few months ago a specimen of skyr from Iceland was sent here by an icelandic physician and we find that this has the same essential properties. I want to thank you for your patient attention also to thank you in general for your co-operation in the efforts we are making to make you well. Patients who co-operate with their doctors who seek to make themselves intelligent and to apply all these principles in their daily lives and carry them home with them are certainly to profit by them. I met in the hall a day or two ago a lady who was a patient with us twenty-five years ago. She has come back now. She was a young lady then, now she has come back to get another little

lift. She has enjoyed good health all these years by following Battle Creek principles. We have a lady in the house who was with us as a patient thirty-eight years ago. Had then some serious stomach trouble from which she came to be relieved. She has lived well and comfortably all her lifetime until about six months ago when the same trouble returned through a little carelessness perhaps and with advancing age and she is now with us again and is getting better so these principles are not experiements, you see. The things that are being done for you, ladies and gentlemeneare not experiments but they have been tested and tried by a whole generation of people.

I thank you for your attention.

End.

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June 18, 1913.

Question Box Lecture at the Sanitarium Parlor, Monday, May 12, 1913

at 8:00 P. M.

by

J. H. Kellogg, M. D.

I had a letter today from a very distinguished gentleman who was with some time ago and when he left he confessed he was almost converted. Like Felix of old he said, "I am almost persuaded to be a vegetarian." Well, he wasn't quite sure and in the letter from him today he said, "Now, doctor you know there are a good many animals that are hunters. Animals hunt and it seems to me that it is natural for man to hunt too." Men like to hunt and I am not sure but that is a natural instinct to supply a real need of the body. Now, what do you think I said to him in reply to that? I said to him, "You are not an actual a natural hunter. You haven't any natural desire to hunt. You haven't any natural means with which to hunt.) When you go out to kill something you take along a dog to do the hunting for you and a gun to do the killing for you. (You could not find a wild beast in the first place. You could not catch the wild beast if you found it and you could not kill it after you had caught it and after you have caught a wild beast you have n't anything with which to tear him into pieces and eat him. You have got to have some help. You have to have a dog to do the hunting for you and a gun to do the killing for you. Then you have to have a cook stove to do part of the eating for you so there is no evidence that man is an animal hunter. It is perfectly absurd the idea that man should be a natural hunter. Now take a cat for instance, no matter how young a cat is, if you put it into a room with a mouse it will go for that mouse. The cat doesn't have to be taught to catch mice, does she? I am quite sure that a cat that had never seen a mouse

at all, if you put that cat into a room with a mouse it would not be very long until the cat would be after the mouse and would be eating it. However, I rather believe the other way. (I think there is one particular great biologist who claims that kittens have to be taught to catch mice) and he tells of one case in which he brought up a kitten without allowing it to know such vicious notions of its mission in the world , that is, to catch mice until then and (he brought up several of them without contact with anything of the sort and he put some mice with them and they were not afraid of each other and the cat paid no attention to the mice at all until one of those little mice started to run and the moment it started to run the cat was after the mouse at once and when the cat got the mouse it didn't do anything at all to it. It was simply the moving object in which the cat was interested and it hadn't the slightest idea of eating it but we will grant that the cat is a natural hunter and it catches and eats a mouse when it has a chance.) Now suppose we give a baby the same chance. Bring the baby a sheep or a bird or a mouse and will the baby show the slightest desire to see one of these little creatures and eat it. Now if it were an apple, a peach or a pear it wouldn't be very long before that apple would be in that baby's mouth or at least a good part of it but if it is a mouse, an oyster, or a sheep or any sort of beast I don't believe the baby would show the slightest disposition to eat it. Take a baby into an orchard for the first time where there is a rosy cheeked peach hanging down from a bough. Why, the little one would be right after it reaching after it and if you let the baby have that peach it knows right away what to do with it. Now suppose it is a bird up in the tree instead of the peach. and could you believe that any baby or young child would want to lay hold of that young bird and eat it. There is not the least bit of evidence that man has naturally any instinct whatever to kill animals and eat them. (It is the very opposite.

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The whole thing is repugnant. Who would like to have a slaughter house next door to him? Who would like to have any member of his family engaged in the business of killing animals working in a slaughter house? That is the sort of business that is left for degraded people to do and nobody but people of a degraded class will permit themselves to engage in that kind of business. Now let me ask you: has society any right, have you any right to maintain any unnecessary custom which compels a whole class of people to degrade themselves, thousands of people, to degrade themselves in an occupation that brutalizes them, that renders them unfit to exercise the ordinary proprieties and amenities --- of life. A man is on trial for anything for which his life is at stake no butcher is allowed to sit on the jury. No lawyer who has a client whose life is in jeopardy would permit such a thing as that. A butcher should be put upon a jury who is to try that man. There is no law that butchers cannot serve on juries but no lawyer would permit such a man so serve on a jury which is to try a man for his life. The fact that the man is a butcher is sufficient objection to keep him off the jury. Why? ~~Why? If any~~ of you have ever been down at any of the great abattoirs and seen those assassins that stand there thrusting knives into the throats of fellow creatures, if you have ever been in such a place and seen that ------- down in the pit ~~all covered with blood and~~ with nothing but a single cloth about his body and all covered with gore, a long knife in his hand and grinning as he thrusts that knife into the animals ~~flesh~~ throat and when the blood rushes out of the great gash, that man's face lights up with a great beam of delight. I have seen that thing and have had to come away. It was too much for me to enture but ~~I said~~ as I saw that man thrusting that knife in almost measured time into creatures that were rushed along to him and a gush of blood every time he thrust a knife into, I said to myself, "He looks just as though he would just as soon thrust that knife into me as into a pig and he would." I would not want to have any association with that man. I want to tell you the sentiment of

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childhood is altogether opposed to that thing. Some of you perhaps have heard the story told in the papers not very long ago of a little boy. His mother had three children, a little boy of three, a little girl of five and a little boy of six and she went away one day and when she came back she found two of the children were lacking and inquired where they were and that little boy said "Oh, we have been killing pigs and he took her out and those children had been killed and with a butcher knife behind the house. He had cut the throats of both of them just as he had seen his father cut the throats of pigs. He had been playing killing pigs. Now that child is very likely lacking in moral sense, or ~~xhyx~~ it could not have done such a thing as that at six years old. In New York sometime ago children were disappearing. One little child after another disappeared until eight or ten children had disappeared and finally it was found that

Question Box Lecture of May 12 cont. from note book page 5510.

In New York sometime children were disappearing, one little child after another disappeared until eight or ten children had disappeared and finally it was found that a boy of elevan whose father was a butcher had enticed these children into a cellar and had killed everyone of them and their bodies were found there. He had gone into the butcher business. It was in him, don't you see; it was in him. Why, my friends, just think what this butchering business is doing for us. It is not the spirit of natural childhood, the spirit of natural childhood is better ~~xxii~~ illustrated by the story of the little girl who had a little lamb, "Nanny" and she tied a pink ribbon around its neck and they used to play together and the little lamb was a very sweet playmate for the little girl. She had no brothers or sisters and so she and the lamb played together all day. By and by that little lamb got plump and fat and the father's mouth began to water. He wanted some lamb chops so one day he killed the lamb and at dinner he cut off a piece of lamb and offered it to little Mary and she declined. He said to her, "What, May, don't you like roast lamb?"and she looked to her father with tears running down her face and she said, "Oh, Papa, I can't eat Nanny." Nanny was her playmate. Now my friends every sheep is a Nanny. Every sheep has got intelligence. Every sheep has capacity for love for sympathy and affection. These animals have character. We talk about the patient ox, don't we and the gentle lamb and the faithful dog and about all of these creatures. We recognize they have character and ~~they have~~ we recognize even their qualities of mind and heart. We know the affection a mother cow has for her calf. They have the same feelings we ourselves have; how the father bull fights for his flock. He will sacrifice his life ~~for them to~~ fighting

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to preserve the cows and calves and to defend them against the wolves that are attaching them. We find in these animals sentiments like those we have in our own hearts. They are wonderfully near to us. They are really kindred, they are not things. Now beefsteak is a thing but an ox is not a thing. An ox is a creature, a sentient creature. It is not a thing like a potato or a grain of wheat or corn so the sheep is a creature and has a brain like your brain and mine and if you put a bit of sheep's brain under the microscope and a bit of human brain you could tell them apart under the microscope. We all have the same bones, the same white glistening nerves, the same red blood cells, the same blood corpuscles, the same transparent eyes. They can see. They can look out of eyes. They can form an opinion of their friends. They recognize kindness and show appreciation of it. They do a whole lot of thinking that you and I don't know anything about so you see we are so nearly like them that they must be relatives. God has made them all of one blood. He has made us all of a certain kinship, a certain kindred, these warm blooded animals. They are like us in so many ways. It seems almost like cannibalism to eat them. An East Indian said he could easily see how a man could learn to eat other men because sometimes he said "I hate my enemies so I feel as though I could eat him" but how a man could ever eat a cow he could not understand, a gentle creature like a cow and I saw in the paper not so very long ago an account of a great feast that they had been holding in Calcutta, an annual feast; the James a certain sect of these bromines and in selebrating this feast day they had purchased twenty cows of the Mohammedan butcher who intended to slay them. They had purchased twenty cows and set them free. That is the way they celebrated their feast instead of killing the cows and setting down to feast upon them to get their bones, they bought the cows and turned them free, let them out and enjoy life. That is what we do on Thanksgiving day. We always have turkey here for Thanksgiving.

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If you are here for next Thanksgiving you will see the turkeys when you come down from the Thanksgiving dinner eating their dinner down here in the lobby while the rest of the folks are up stairs eating their dinner we get the turkeys right down here in the lobby and we tell people in advance that we are going to have turkey for Thanksgiving dinner so when they come and see the turkeys having a good dinner with the rest of them and it is also amusing to see how these turkeys do enjoy themselves. At our house we have turkeys at Thanksgiving and let them have a few bits after dinner and we congratulate turkeys on the them that they are still alive and then open up the window and put the/window sill, give them a little boost and send them off with our best wishes. You say somebody is going to catch that turkey and kill him and eat him. That may be. It won't be me. It won't be any of my family. We are going to give the turkey his chance. They don't all have a chance you see. They don't have any chance at all. As they grow up people pretend they are the turkey's friend and with hypercritical smiles and the luring maneuvers of various sorts they begile them, that turkey, in supposting they are his friends as the poet Ovid said nearly two thousand years ago, "First we feed with household bread, then eat the turkeys that we before we fed" and the same poet said, "What else is this but to devour morsels our guests and barbarously renew Cyclopean feasts. If the men with fleshy muscles must be fed and chaw with bloody teeth the breathing bread, what else is this but to devour our guests and barbarously renew Cyclopean feasts," so you see there is no reason to believe that man is naturally a killer. Lord Byron said, "Man is a carnivorous product. He must have prey"but that is quite a mistake. It is only the perverted, savage men and it is because our forefathers were cannibals way back two thousand years ago in Old Britan running about clothed in war paint and eating their enemies. It is because that old cannibals still leaps and yells in our hearts. That ~~is why~~ we are so fond of roast beef and juicy beefsteak. We must get rid of that idea for we are not naturally

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meat eaters but are naturally frugiferous animals like those very wise and intelligent relatives of ours, the gorillas and the chimpanzees and the big apes that live in the woods and still adhere to the orginal bill of fare that God gave to Adam.

Q. How can low vital resistance be cured?

A. Cold baths, a proper diet, a Sanitarium bill of fare, keeping the bowels moving three times every single day and sleeping in the open air at night. Those are some of the greatest things you can possibly do. A cold bath, pure diet, three regular bowel movements daily and an open air life as much as possible. We can live in the open air at night if not at any other time.

Q. Does a person get blisters on the tongue from a bad stomach?

A. Blisters on the tongue or sores on the tongue are an indication of low vital reaistance. It may be due to a bad condition of the stomach but is more likely to be due to a bad state of the colon.

Q. Does an enlarged spleen ever cause convulsions?

A. No but conditions which cause enlargement of the spleen, a state of autointoxication gives rise to an enlargement of the spleen and of the liver and this same state might also give rise to epilepticand other forms of convulsions.

Q. Does drinking water freely have a tendency to make a person fat?

A. Yes, drinking water freely might make a person fat because it stimulates the metabolic processes which induce building up the tissues. This stimulates tissue building.

Q. Does it tend to make a person thin?

A. Yes, if he is too fat by aiding elimination and preventing an undue accumulation of waste matters which are in part responsible for the over accumulation of flesh.

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Q. Is it a fact that roasted peanuts are much less nutritious than raw?

A. It may be true if the peanuts are roasted until they are burned. Of course, their nutrical value is destroyed and the ordinary way of roasting peanuts is unwholesome. Ordinary peanut butter is not fit to eat because the peanuts are burned. The Sanitarium peanut butter is made from peanuts which are not roasted but are cooked at the proper temperature but have not been roasted and have not been in the oven at all for that matter. They are not put into an oven at all but are heated by steam pressure.

Q. How is imported Swiss cheese for food?

A. It is splendid food for germs. Let it stand arounda little while and it gets skippers in it. What are those skippers? They are the magets of a certain species of fly. I bought some once and the gentleman assured me there were plenty of skippers in it and when I came to examine it there was not one there. They had all skipped. They could not stand it. Perhaps you remember the story of Charles Lamb. His sister sent him down to the cheese market one night a mile and a half on a dark stormy night to get some cheese for her because she thought she could not possibly go to bed without some roasted cheese and as the cheese monger was cutting off the cheese Mr. Lamb noticed it was very lively cheese and the cheese monger said, "Mr. Lamb, shall I send it home for you?" Mr. Lamb said, "Oh, no. Lend me a string and I will lead it home." Now an article of food ~~that has to be herded~~; I was thinking just then of a circumstance that happened not so very long ago. (A man who had been particularly fond of cheese was served some cheese that was all alive and wriggling. The waiter said, "Sir, shall I take it away." "No", he said, "leave it alone . It will take itself away." Well, a thing that has to be herded certainly is not a fit article for food. Yogurt cheese, ordinary cottage, fresh made cream cheese are the only assorts of cheese that we can recommend in that line.)

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Q. Is the rice served here unpolished?

A. Unpolished rice is no different from the polished rice excent that it does not have the chalk added to it. We purchase for the Sanitarium here two kinds of rice, the unpolished rice which has had the brown taken off also rice which is known as brown rice. The rice which is complete which has all the nutritive elements is brown rice, not unpolished rice but brown rice. Unpolished rice has no higher nutritive value then the polished rice and the polished rice can be made just as good as the unpolished rice by simply washing it in water. That will wash all the chalk or talc away so there is no objection to polishing it unless we are going to use the brown rice. The other is just as good provided it is washed.

Q. What causes flattening of the heart?

A. The heart changes in forming size by changes in its valve, by injuries which take place in the heart as the result of inflammation when the heart form is changed and these changes and in form can be seen by the X-ray and this is one important means of diagnosis which has been discovered in recent times.

Q. Why did God permit the Hebrews to eat meat?

A. I am sure I suppose for the same reason that he allowed the Hebrews to practice polygamy or because of the hardness of their hearts. It certainly was not for the benefit of their health because their lives kept getting shorter and shorter all the time and you know when the land of Palestine, the Holy land was recommended to them it was recommended as a land flowing with milk and honey. The Hebrews ate very little meat because when they did eat it they soaked it over night ~~to get~~ in salt and then washed it thoroughly until all the blood was washed out of it. It had so little flavor you would not think it was worth while to eat it at all. The orthodox jew at the present time eats very little meat for the same reason. Ask any conscientious orthodox jew especially a Jerusalem jew and some of these really orthodox jews and they will tell you that meat has so little flavor they do not care much for it because it is soaked with salt to separate the juices and in the morning it is pretty well ----- until there is scarcely any flavor

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in it and when they killed the animal they were required to kill it with ceremony. The blood must be poured out upon the ground and the dust. The blood thereof which is the life thereof, thou shalt not eat of it" and yet you find people eating blood puddings, sausages and all that sort of thing so that we have to take this into account when we consider the permissions given to those old Hebrews. We have a lot of business men upstairs who have a banquet and I am going up there to tell them what to eat for business efficiency so please excuse me.

End of this lecture.

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Question Box Lecture at the Sanitarium Parlor, Battle Creek, Mich., Monday, May 19, 1913 at 8 p. m.

by

J.H.Kellogg, M. D.

I will tell you tonight what made me late. Just as I was ready to come in here I met a man and his wife who had traveled all the way from Texas to see a daughter who was here and in a very critical condition. They had just got in and they came with a very anxious look upon their faces and appealed to me so that I said, "Although I have got an audience waiting I will stop a few moments to speak to you with reference to your daughter", and that is what made me late. It was a very critical case and I ~~thought~~ felt that these poor souls having traveled all the way from Texas, it was not fair to keep them another hour in suspense when I could make them happy.

Q--In case of forcing suffragettes to eat in England, what kind of foods would you recommend?

A--That is a kind of disease we have never had to deal with here. I see it is breaking out a little in New York and Washington but it has not yet appeared ~~yet~~ here in Battle Creek. The first case of that sort that occurs here, I shall call the whole faculty together and we will have a consultation about ~~it~~ the case and I think we will feed them Colax.

Q--What is the best thing for singer's sore throat?

A--Now the best thing is to have a good throat to start with and that is very necessary. One who is to be a public speaker or a singer needs to have a healthy throat but if you haven't that kind of throat the next best thing is to treat your throat with hot water, externally and internally. Gargling very hot water in the throat is a very excellent means of relieving hoarsness. I have all my life suffered as a result of an accident which has been very embarrassing to me. When I was a young man I was a lecturer in chemistry and physics and other sciences in a college and I was making an experiment one day and somebody had

meddled with my apparatus when I was not looking and I had an explosion right before my face and under my nostrils a flask of pure chlorin gas, just as I was at the end of a sentence taking a breath for another sentence, this flask exploded and threw the pure chlorin right into my face and I filled my lungs with chlorin gas and, of course, I was nearly asphyxiated. I was unable to speak for several weeks and I felt I never should recover my voice again, but I got back a voice but a poor one so that I have had to suffer ever since. If I am the least little bit fatigued, then my throat is troublesome and if I have the least bit of chill of any sort, then a weak spot in my body shows it right away and it is very annoying and distressing. I don't know that there is any cure for that and if there is I would like to find it. I find, however, that when I have plenty of sleep and feel fine, I get up in the morning and have not had very much work to do and am well rested, I find my voice is clear but when I have had to go forty-eight hours without sleep I can hardly utter a word. It makes a very great difference with me and with the situation with my nerve tone and I suppose the same thing must be true of singers and of all people who have to use the voice a great deal. The condition of the general nervous tone is a matter of very great consequence.

Q—Please tell what kind of food besides rice and apples will leave the stomach in an hour and a half or less?

A--Almost all the good foods which contain no fat. Fruit juices, apple juice and all the different fruit juices will pass out of the stomach in half an hour to an hour or an hour and a half. Substances which contain fat or protein require a long time in the stomach. Substances which consist almost entirely of starch will leave the stomach in an hour or an hour and a half. The reason for this is shown by Cannon who found that food which consists chiefly of starch does not neutralize the acid of the gastric juice. Consequently, the contents of the stomach become acid sooner than when the food contains protein because when the food contains a large amount of protein, the protein combines with the acid and neutralizes it, takes it up so that the fruit acid is not present and when the

food contains a large amount of fat, the fat prevents the formation of acid, so a starch diet causes free acid to form in the stomach early. It is not because the stomach makes more acid, but it does not neutralize the acid so that the acid formed is free. This acid coming in contact with the pylorus causes the pylorus to open. Hydrochloric acid on the upper side of the pyloric valve opens it; on the lower side closes it. When the acid goes through the valve it causes it to the valve to shut up, but on the upper side of the valve it causes the valve to open. This is one of the most wonderful arrangements in the entire body.

Q--What is the best way to rid the system of malarial germs?

A--The best way is to come to Michigan or to some other climate where there are no malarial germs because the only real antidote for malaria is the body itself, the white blood cells. Now the white blood cells eat up germs just as robbins eat worms. Here is a white blood cell we will say and here is a malarial parasite. Now these malarial parasites get into the red blood cells. One of these malarial parasites pursues the red blood corpuscles and gets inside of one of them and eats it up. On the other hand these white blood cells all pursue the malarial parasite and if the white blood cells catches the malarial parasite before it gets into the red blood cell, then it wins the victory. But if the malarial parasites are fleeing through the red cells all the time and trying to get inside of them and hide where the white blood cells cannot get at them, but when a white cell catches one of these malarial parasites it swallows it, eats it up so it dissolves and disappears just as the oyster disappears when you swallow it if you do or any other kind of beast you know. Now the important thing then is to have a good supply of these white blood cells. The cold bath is the most excellent means of promoting the development of these white blood cells in the body. After a cold bath when one has had a good reaction and examination of the blood shows an increase of thirty or thirty-five per cent. of white cells, think of that? The morning cold bath if you get a good reaction, take a walk then take a cold bath and get well warmed up after the bath and have a good reaction you have thirty-five, forty or even fifty per cent. more white blood cells working for you then you had before. So if you can get enough

white blood cells at work you can capture all the malarial parasites in your blood and eat them up and if you go into a climate where there are no malarial parasites;where there are no anopheles mosquitoes so that cannot inocculate you with this disease, then the white cells will gradually conquer this disease. But if you live in a malarious climate just when you are getting over one inocculation along comes a misquito and bits you, inocculates you again so you have a new crop of parasites. The important thing is to get away from them for a time and the next most important thing is to keep your body on such a high plane that you can eat up the parasites as fast as they can get in. But why not protect oneself just as far as possible against the cause of this trouble by means of screens and avoiding malarious localities or localities infected by the anopheles mosquito.

Q--How long does it take for malt honey, lacnut or corn flakes to digest in the normal stomach.

A--Well the corn flakes ought to get through about as fast as rice I should think and malt honey requires no digestionin the stomach. Lacnut passes out of the stomach very quickly. It is liquid and does not remain in the stomach more than an hour or two. Malt honey passes out within half an hour or less.

Q--If one's X-ray report shows no signs of ulcers, could it be possible that one would have such a small one located somewhere in the stomach that it could not be discerned?

A--Yes that is entirely possible. The X-ray has not infinite discernment or wisdom. It is a marvelous addition to our means of diagnosis

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It is a marvelous addition to our means of diagnosis but there can be some small ulcer that is not discovered by the X-ray.

Q. Is it possible that by smoking and inhaling two to twelve cigars a day ulceration or inflammation of the stomach might develop?

A. Certainly it is not only possible but very probable.

Q. What makes one so impatient when they are waiting for Dr. Kellogg to come in to lecture when there is somebody seeing him?

A. I suppose that is autointoxication, sometimes a germ. We will cure that if we can.

Q. What is the blood pressure of a person living on a non-flesh diet?

A. I suppose that depends somewhat on conditions but certainly it is lower than that of a person living on a flesh diet for two reasons. In the first place high blood pressure is produced by uric acid. Every pound of beefsteak contains fourteen grains of uric acid. The body eliminates only six grains of uric acid a day so when you eat a pound of beefsteak you are taking a two day's job for the kidneys and meat eaters will easily eat a pound of meat in the course of a day. Beefsteak shrivels up a good deal in the cooking, don't you know. If you eat sweetbreads then you get five times as much. A pound of of sweetbreads contains seventy grains of uric, a dram of uric acid in one pound of sweetbread. I told a man about that sometime ago and he nearly fainted away. "Heavens", he said, "I have eaten a pound at a meal many a time". He said, "They don't amount to much, they all shrivel up when they are cooked." That man had swallowed at a single dose seventy grains of uric acid. Now this uric acid is the worst thing in the world for making high blood pressure and all flesh contains it. White meat, fish and fowl as well as flesh oysters and all kinds of meat contain it. Milk does not contain uric.

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Vegetable foods contain practically no uric acid. There is a little found in beans but if you boil the beans you get rid of it. An article was recently published in the newspapers which was brim full of this information concocted by Dr. Woods Hutchinson pulled out of his own stomach as they say down in Berma. In this article Dr. Hutchinson said that beans, peas and lentils contain a great deal more uric acid than beefsteak. This is simply monstrous to make such statements as that. A pound of dry beans contains four grains of uric acid. Now a pound of meat contains fourteen grains of uric acid. Here are the beans four grains and the meat is fourteen grains but now the meat is three quarters water while the beans are dry so if ~~we multiply the meat by four~~ or rather if you divide the beans by four it will be the same thing to bring the two on an equal basis. A quarter of a pound of beans contains as much food as a pound of meat because the meat is three quarters water so if you divide the beans by four it will give us one grain, that is, one quarter of a pound of beans contains one grain of uric acid and a pound of meat contains fourteen grains so the meat contains fourteen times as much uric acid as beans contain when compared on an equal basis you see, that is, equal food quantity. If we add water enough to the beans so that the beans and the meat are on the same basis or if we extract all the water from the meat so that the meat and the beans contain the same food value, then we find the meat contains fourteen times as much uric acid as the beans but if we parboil the beans we will get all the uric acid out practically. Simply boil the beans fifteen or twenty minutes, then turn the water off and that is the proper way to cook the beans. In that way we get rid of all the uric acid and there is no harm possible then but if you are going to cook the meat you don't do that you see. When you cook the meat you boil the meat and you get the uric acid out of it, then you take that broth and sever it on the table as beef broth or bouillon, don't you see and you make a double distilled extract of the meat and buy it from the store stores under the name of Armour's Extract of Beef. Armour's Extract of Beef is mostly uric acid, don't you see.

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The examination of this beef extract shows that it has the composition of urine. Beef tea, chicken broth, bouillon, all those meat extracts have the composition of urine. An eminent chemist not long ago declared that the only way in which he could tell the difference between beef tea, bouillon and urine was by the sense of smell. He said that without his nose he could not tell which was which because the chemical analyses were just the same. That is not a new idea. Dr. Austin Flint of New York City, one of the greatest physicians who lived during the last century made that statment more than forty years ago when I was a member of his class in Bellevue Hospital , New York City. I heard him make the statement and he wrote in his books even before that time that he had had an analyses of beef tea made and found it agreed exactly with the analysis of urine. There was no difference at all. Well, you will see it is perfectly reasonable. It should be so. The kidneys simply make an meat extract of the tissues. The blood passes through the tissues and washes out the material, the waste matters found in the tissues. Then the blood comes along through the kidneys and the kidneys are a filter that takes this waste matter out and the urine is simply extract of the tissues made by the body machinery. Now then, beef tea is simply extract made by the cook. Urine is an extract of tissues and beef tea is an extract of tissues. Both are extracts simply made in this way so the composition is the same.

Q. What are the chances of curing arthritis localized in the knee joints of a person 70 years old? What do you think the Battle Creek Sanitarium could do for such a person?

A. Now a cure is out of the question in such a case of course. An old person who has arthritis or even a younger person of 40 or 50 years perhaps who has had arthritis for fifteen or twenty years until the joints have become deformed, it cannot be cured. The thing that can be done in such cases is that the disease may be arrested and the pain may be relieved and the patient

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may be made more comfortable and may have a better use of his joints. Perhaps the action of the joints may be restored when it has been quite ------- for a time.

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Perhaps the action of the joints may be restored when it has been/lost for a time. Persons who have lost their ability to walk may be gotten on their feet again in many cases if the limbs are not too much distorted but cure consists in these cases simply in arresting the disease relieving the pain and giving the patient a greater use of his joints. Now, /amount ofimprovement that can be secured in these cases we cannot say in advance how much it will be. It differs in different cases according to the amount of permanent damage which has been done by the disease but it is true that every person who has chronic disease of the joints,that the disease is making progress, damage is being done. It is a progressive disease so the sooner the matter can be taken in hand the better it will be for the patient.

Q. Is there any cure for neuralgia in the limbs?

A. Yes, indeed. Every case of neuralgia is curable, practical ly every case. There is always a cause and the thing to do is to find out the cause and remove it. Some cases are neuritis due to autointoxication. Some cases are rheumatic in character. Rheumatism generally has its origin also in a failure of the body to eliminate its toxines perfectly.

Q. Are cases of heart disease frequent?

A. Here is reference to a man who has recently died who was addicted to the use of tobacco very extensively and he has recently died from heart disease.

A. Every man who uses tobacco very freely will die of tobacco heart if he doesn't die of accident or something else before he has a chance to die of tobacco heart. He is certain to die of it sooner or later because it is a hart poison; Tobacco is a heatt poison. It does two things. It weakens the power of the heart and increases the work of the heart. Tobacco causes contraction of the arteries. A smoker gets pale. A man who has smoked too much recognizes himself as smoking too much because he gets pale. Why? Because the arteries are contracted. At the same time his heart is paralyzed

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to some extent by the nicotine. It is depressed. Nicotine is a depressing agent. It is a heart poison,an accurate narcotic poison according to our standard authorities pn poison and it weakens the heart and lessens its powerat the same time it increases the work that it has to do so it is a very bad thing for the heart and it causes hardening of the arteries. It raises blood pressure. Dr. Janeway of New York a most eminent authority on blood pressure states in his work on blood pressure that one cigar will raise the blood pressure twenty points in thirty minutes so you see what a cigar smoker is doing to himself every time he smokes and what the man who smokes a pipe is doing all the time.

Q. What is the fruit value of mushrooms?

A. Very small indeed. Mushrooms contain a small amount of glycogen and are in that respect different from other vegetables. They do not contain sugar or starch but contain glycogen instead. The carbohydrates in the mushrooms is in the form in which it is found in animals and they contain a small amount of protein. They contain chitin,a substance found in shell fish.

They contain chitin, a substance found in shell fish instead of cellulose. So they are more like animals than vegetables and are likely to contain poison. They are really not to be highly recommended as an article of food. Their food value is very small. Their chief value is in the flavor, flavoring material which they contain and which is apparently wholesome. It somewhat resembles that of meat but does not contain extractives to the same degree.

Q--What vegetables are injurious to one having an excession of hydrochloric acid?

A--All vegetables are wholesome for persons who have an excess of hydrochloric acid. Vegetables are particularly wholesome because they contain in considerable amount alkaline salts which lessens to some degree the acidity of the gastric juice. Vegetables do not stimulate the stomach as meats do, so a diet of green vegetables, especially such as lettuce, puree that does not require very much chewing or much muscular work of the stomach will pass out of the stomach quickly. Such food stuffs are very wholesome for persons suffering with excess of hydrochloric acid.

Q--Is raw cabbage more easily digestible than cooked cabbage?

A--Yes raw cabbage is more easily digestible than cooked cabbage and it is more wholesome. Why? because cabbage contains little that requires digestion. It contains very little sugar, very little starch, very little indeed, A larger proportion of protein than it has of carbohydrates and a considerable amount of cellulose. Now the raw cabbage is not readily attacked by germs. It is easily attacked by the digestive fluids provided it is thoroughly chewed, if it is thoroughly masticated but is not attacked to any considerable degree by the bacteria. Consequently there are many persons who can eat raw cabbage with impunity that cannot eat cooked cabbage. Some years ago I made an experiment with an ounce of cabbage that was raw and an ounce that was cooked. I inocculated both with a given amount of bacteria, with an amount of infectious matter, aproportion of bacteria which had been determined by actual estimation by means of blood cultures. I put them away for three days in an incubator oven at the temperature of the body, then made an examination and found in the cooked cabbage the bacteria had enormously multiplied, whereas in the raw cabbage the bacteria had

actually diminished in number, showing that the raw cabbage actually has the ability to resist the attacks of bacteria. That is the reason why raw foods and raw fruits should be used more freely than people ordinarily use them, such foods as can be eaten raw, like lettuce, cabbage, spinach and cucumbers and radishes and turnips if you like these foods eaten raw are really very wholesome, not only because of the fact that they are less easily attacked by bacteria but because they contain enzymes. These vegetable substances contain enzymes that are valuable in the body. Now it was discovered a few years ago by Dr. Starling of London and by other investigators that the digestive juices are not active unless they are acted upon by some other substance. They require an activator. For instance, the lower part of the pylorus produces a substance known as gastrin which stimulates the gastric juice and renders it active. Hydrochloric acid activates pepsin. Pepsin alone won't digest anything, but the hydrochloric acid which is produced by gastrin which is set free in the pyloric end of the stomach the hydrochloric acid activates the pepsin. The same thing is true of pancreatin. Pancreatin does not act by itself by it activated by the kinase, a substance which is found in the intestine a little below the stomach and is set free by the hydrochloric acid of the gastric juice. So all the way down each one of the digestive principles requires something else to activate it. This is found to be true of various substances found in fresh vegetables and fresh fruits that they contain activating substances. That is why the baby is able to thrive so well on mother's milk, because the mother's milk contains these activating substances which reenforce the feeble digestive juices of the infant and so enable the child to flourish and to digest its food well and to flourish whereas on a different diet it will not do so well. It is for this reason that children very often pine away and become weasoned and emaciated and rickety on a diet of sterilized cow's milk because in sterilizing the cow's milk, these activating substances are destroyed. It has been learned some years ago by experience that if a child is fed upon cow's milk, if that child can have a small amount of mother's milk, not more perhaps than a tablespoonful in twenty-four hours, if it can have just a small amount, that

small amount is enough to keep the child doing well notwithstanding it has a cow's milk diet, because the mother's ~~mik~~ milk contains these activating substances which are highly essential to the welfare ~~to~~ of the child. Now the same thing is true as I said before of the raw uncooked vegetables. They contain substances which are valuable and necessary to the body because they activate the digestive juices of the body and so stimulate nutrition in a peculiar and wonderfully efficient way. An imminent physiologist of the University of Norway located at Christiania read an exceedingly interesting paper before the international congress on hygiene at Washington last September in which he gave the results of the large number of experiments he had been conducting and proved that various vegetable substances contain these activating substances in different amounts. He found that lentils contain the activating substances in very large amount and potatoes are extremely valuable because of the large amount of these activating substances which they contain. He found that potatoes boiled at the ordinary temperature still contain the activating substances in an active state, that these activating substances are present in potatoes which have been boiled. He found also that if beans were boiled at an ordinary temperature, the activating substances ~~which~~ were still present and were active but if the beans were cooked to a temperature of 240 degrees, if they are heated to a temperature of 240 degrees, a temperature which we find in canned baked beans, then these activating substances are destroyed and this has proved to be the reason why sailors sent out to sea with a supply of canned foods get scurvy even though they have vegetable foods. If these vegetable foods have been heated to a high temperature then the activating substances are destroyed and they get scurvy, the same as though they did not have these supplies of vegetables. It is necessary the temperature at which vegetables are cooked should not be high enough to destroy the activating substances. ~~In some substances~~ The activating substances are destroyed in some foods at boiling temperature and this is why it is well to take ~~as much food as we can in the uncooked state~~, at least to take some food in the uncooked state at every meal, ~~a~~ little handful of lettuce or a cucumber. That is why it is so much relished and there is such demand for it, why our instincts lead us to

relish those things and to call for them. It is the natural appetite of the body that is making a demand for the thing it really needs. That is why we relish those things that really has very little nutritive value. We were so foolish years ago as to suppose that we ate these things as a luxury, as a sort of relish and that we could get along just as well without them, but now we know this is a great mistake, but all these fresh growing things like asparagus fresh leaves of lettuce, celery and these things and we know that they contain elements that are just as essential to the adult body as the mother's milk is to the growing infant, so it is very important for us to remember this and keep it in mind by making our bills of fare to always avoid a meal that consist entirely of cooked foods. I think this is one reason why some invalids who get sick are so long in getting well. When an invalid gets sick he is fed upon gruels, mushes and upon broths and things of that kind that are always cooked. He is not allowed to eat anything fresh. We furnish lettuce in our surgical ward. When patients come out from a surgical operation, just as soon as possible we begin to give them something fresh because we believe there is more healing power in these fresh things we give them, fresh apple juice, fresh orange juice and fresh things of that sort so they will be able to get some of these activating substances which they need very greatly in convalescing from an operation as much as or more than at any other time.

Q--Can telegraphers' paralysis be cured?

A--Yes, long rest, massage, applications of electricity and special gymnastics are effective in curing these cases. Generally it is found, however, that the man who has telegraphers' paralysis has a susceptibility to that sort of thing. He suffers in his arm. It is not his arm alone, that is diseased. His entire body is diseased and if we cure his arm and set him to work with the other hand for instance, let his arm rest and let him learn to use the other hand in a short time he gets telegraphers' paralysis in the other hand because the condition is really a state of his entire body and not simply a mal condition of his hand. Their condition which is distributed throughout his entire body is a condition of malnutrition and generally accompanied by intestinal autointoxication. This intestinal autointoxication is the mother of a vast number of maladies.

Q—In case of abcess of the inner ear, what precautions should be taken by the doctor in the care of the case to prevent infection? After the abcess is opened what would it indicate to have two small abcesses form on the out side of the ear in a few days?

A--It would indicate that patient's vital resistance was very low. The material that comes from the interior of the ear is not of an extremely highly infectious character, it is the sort of thing that is present in the mouth all the time, the sort of bacteria that are on the skin all the time. We are in contact with this sort of bacteria all the while so it is not a new thing that these bacteria come in contact with the skin. All the bacteria coming from an acute discharging abcess of this sort are more virulent than those which are ordinarily found present upon the skin. A doctor who treats such a case will apply proper antiseptics and will protect the skin by keeping the skin thoroughly clean and perhaps by the application of a little vaseline or the application of a little tincture of iodine reduced in strength about the ear. These are the ordinary prepautions and there are many others which are valuable.

Q--What treatment would you suggest for dandruff?

A--Some simple lotion is good. Bathing the scalp with cold water is a very good thing and exposing the scalp th the sunlight. The quickest cure is to be found in the application of the actinic ray or the Quartz lamp applied to the skin or the arc light. This will effect a cure in a very short time. The skin is sunburned as the scale comes off from the sunburn the scalp is left in a healthy state.

Q--What is meant by the sub-conscious mind?

A--That is a pretty hard question. I guess you will have to ask that of Dr. Munsterberg and after he has explained to you a week you will still feel somewhat in doubt as to whether he knows what he means or not. At any rate that is my state of mind after trying to find out for some years what the sub-conscious mind is. I confess that I do not exactly know. I feel a good deal about that as Dr. Olcott did about transcendentalism. I used to read a good deal about that when I was a boy. Emerson was talking a good deal about it and Bronson Olcott was

traveling about the country giving lectures about it and I thought it must be something superbally good and I read everything I could get hold of about transcendentalism but it left a very vague and uncertain impression. Sometime ago I met Dr. Olcott and interviewed him and I said to him, "Dr. Olcott, I am glad to meet you. I think you can give me some light on transcendentalism." A broad smile came over his face, he said, "Then you are interested in knowing what it is. Well," he said, "I will tell you all I can about it. I asked my uncle Branson one day if he would not explain to me about transcendentalism and told me what it was and he explained to me for three or four hours steadily and at the end of that time the best idea I could get about transcendentalism was, that it was a cloud away up in the air somewhere and some people were standing on tiptoe and trying to reach it but couldn't quite touch it." Well I am inclined to think that is about as near transcendentalism as you can get. The sub-conscious mind, I think, is a little hazy in the same way. Perhaps it is a little more concrete.

Q--Does not physical exercise benefit one more than massage if one is able to take exercise?

A--Yes by all means yes and it doesn't cost you a cent to get all the gymnastics you are a mind to.

Q--Is it harmful to wash the hair in gasolene?

A--It might be if there was a lamp around or somebody should light a match or somebody smoking a cigar or cigarette, it might be extremely harmful. I would not try it. Kerosene would be safer if there is any need for using remedies of that sort.

Q--Have you ever known of hydrochloric acid showing up in the second test when none was found in the first test?

A--Yes that is a very common experience. Frequently patients whose test show no hydrochloric acid at all or very little complain of symptoms which indicate an excess of hydrochloric acid. On investigation it is found in these cases that the development of hydrochloric acid is unusually slow but after a couple of hours of

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three hours an abundance of hydrochloric acid may be found in the stomach, when, at the end of the ordinary Ewald test meal one hour none at all is found so we must make a second test ~~xxxxxx~~ in some cases before we can be too sure. If, however, we have a test meal and then have a bismuth meal, the bismuth meal shows that the meal passes straight out of the stomach and the pylorus does not close, then we can be pretty sure that case is a case af achylia and that no hydrochloric acid is found.

Q--Are hot biscuits injurious to health? If so, why?

A--Well now I am going to leave that question until next Thursday night then I will bring down a fresh loaf of bread and I am going to make a base ball out of it and show you why, or perhaps a cannon ball.

Q--Do vegetarians ever develop ulcers of the stomach or duodenum?

A--Yes I have met several cases in which ulcers of the duodenum or stomach has developed. They are most likely to occur in meat eaters but they may occur in vegetarians who suffer from inactivity of the bowels. So stasis or stagnation of the material in the duodenum is probably the most active of all the causes of this condition.

Q--What causes excessive hydrochloric acid?

A--I think inactivity of the bowels and autointoxication are the most common causes of it. Roger, a number of years ago showed by experiment

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Q/ What would be the effect upon the stomach of eating too much malt honey?

A. One might perhaps have an excess of acid formed in the stomach. Malt honey is very stimulating to the stomach. If one is thin in flesh and needs to gain in flesh by taking a considerable amount of malt sugar he should add to it some olive oil or butter or nuts saps of some sort in abundance to the malt sugar to counteract the tendency of the malt sugar to stimulate the stomach to the formation of too much acid.

Q. Why may a person have good blood and a bad stomach?

A. A stomach which produced too much acid and an abundance of pepsin would be a very painful stomach perhaps would cause a great deal of distress but it would not be a crippled stomach. It is a stomach which does the full amount of work and in such cases you would not expect there would be necessarily a situation of a state of anemia or deficiency of blood. On the other hand, a stomach that made no trouble at all might not being doing work enough, might be entirely retired from business and in such a case the blood might be anemic because of the deficient digestion.

Q. What causes great pressure in the head at times like an iron band?

A. That is often a nerve neurasthenic symptom due to toxines absorbed from the intestine and irritating the membrane of the brain.

Q. Does the gastric test reveal conditions of the stomach at all permanent?

A. Yes. The condition of the stomach shown by a gastric test isusually a condition that is found constantly present. Of course, there might be some mental state or some other cause which would produce a temporary change in the gastric chemism by the conditions found are usually permanent conditions/ When the test is made under proper conditions.

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Question Box Lecture May 18, Cont. from note book pages 5560.

Q. What causes excess of hydrochloric acid?

A. I think activity of the bowels and autointoxication are the most common causes of it. Roger a number of years ago showed by experiments that the poisons absorbed from the colon are excreted into the duodenum and experiments made at Johns Hopkins University which have been repeated in Chicago in recent times by Dr. Holstead and others have shown that when there is stagnation in the duodenum the result is the development of highly poisonous substances which give rise to the ulceration and sometimes to ganggrene and even death.

Q. What animal flesh do you consider most injurious to health?

A. The harm that comes from the use of animal flesh is not so much what is in the flesh but what happens to the undigested remnants of it. For people who eat a small amount of meat it would probably be difficult to say that they suffer any injury from it but people who eat freely of meat always have in the alimentary canal a considerable amount of undigested residues of meat and it is the putrefaction of these undigested residues that make the trouble. Now what you know what the state of a pantry would be if you had a lot of old bone and gragments of meat and things of that kind lying about in it. You know the pantry would become very unsavory in a very short time. The alimentary canal gets into the same situation. The portion of meat that is digested and absorbed does not do any great harm but it is that portion which is not digested and which remains in the colon and undergoes putrefaction encouraging the development of putrefactive organisms and an infectious state of the colon producing colitis and other mischief. This is what does the harm.

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Q. What is the cause of heart burn?

A. This condition is due to the excessive formation of acid in the stomach. It is not due to fermentation in the stomach as was formerly supposed but it is due to the development of excessive acids in the stomach and the too long retention of foodstuffs in the stomach so the acid instead of passing on is accumulating in the stomach. It may be due to spasm of the pylorus or to prolapse of the stomach so that the food is not quickly emptied from the stomach. It may be due to a damming back of material in the intestine from a kinking low down in the intestine.

Q. Is it best to drink water at meal time?

A. It does no harm to drink a moderate amount of water unless you are suffering from hyperhydrochloria or ulceration or excessive acid. In such cases it is best to avoid all kinds of liquid food. It is best to avoid drinking at meals and to avoid the use of tea, coffee, hot drinks and all kinds of liquids must be avoided and at the same time such persons must avoid foods that require much chewing. The foods should consist of pultaceous substances or purees and mushes, mashed potato instead of ordinary boiled or baked potato or saratoga chips or anything of that sort.and that kind of foods must be discarded. Fried foods, greasy foods, new bread, particularly hot buns must be very carefully avoided and anything that requires chewing. Everything must be taken in a state that is already thoroughly subdivided so that it will require no muscular work in the stomach and no work in the mouth so it can mix with the digestive fluids of the stomach quickly and pass on quickly into the smallintestine. You say that this is very strange advice to say you must not chew very much. There is this one particular condition in which excessive mastication or even ordinary mastication is sometimes undesirable and the reason is shown by Pawlow. Pawlow made the interesting discovery that gastric mucous membrane secretes gastric juice while the food is still in the mouth and the gastric glands are stimulated to activity by the

stimulation of the gustatory nerves, the nerves of taste, but the presence of food in the mouth causes the stomach to pour out an abundance of gastric juice before the food has entered the stomach at all and the more one chews the longer the food remains in the mouth, the more gastric juice the stomach will make so we want to avoid this stimulation of the manufacture of gastric juice. The liquid should not be taken in large amount. Pawlow also showed that a large amount of liquid in the stomach stimulates the stomach, causes it to pour out a large amount of gastric ~~juices~~ acid. He found a pint of water would always cause a very free secretion of gastfic acid, so you see it is well to reduce the amount of water and to take no liquids at meals if your stomach is already making too much acid . That is a condition in which anything that will stimulate the stomach should be avoided. In addition to this one should take a certain amount of olive oil and should make free use of fat because these also delay the secretion of gastric acid.

Q— What about polished rice producing beri-beri?

A--Some of you perhaps read sometime ago during the Russian-Japanese war about the use of rice causing beri-beri among the Japanese soldiers and that they were relieved by the use of meat and this led to experiments by various commissioners and committees of different governments to ascertain the cause of beri-beri. One very interesting thing occured during the war or rather an account of it was given after the war. Admiral Togo reported that among the sailors beri-beri was counteracted and best combated by the use of ~~beans~~ lentils and beans and the sailors liked the beans and lentils very much better than the meat. A recent report was published in the Journal of the American Medical Association of some work that has been done within the last year or two at the Lister Institute in London. This work was in progress when I was in London a year ago last winter but it had not yet been completed. Research had been carried on for a long time by a doctor Cooper and others and it was found that various substances contained anti-beri-beri substances, various foods contained substances which are anti-neuritic. Beraberi is a naurosis, a sort of peritheral neuritis. Patients suffer from pain in the limbs. Animals, chickens, rats, guinea pigs and other

animals fed on a strictly rice diet, in a very short time began to limp, get lame and after a while died. Birds and fishes generally become neurotic in about three weeks after being put upon an exclusive diet of polished rice, but it is found that the same thing is true if they were put upon fine flour bread, they had the very same trouble, had beri-beri it seems when they were fed on polished rice and other articles of food in which the outer husks was entirely removed. It was found that they got beri-beri in the same way. Now it was found that by feeding these animals the yolk of egg or meat or lentils of barley ~~m~~, the whole barley were quickly relieved of the disease. Animals that were terribly crippled and very ill with beri-beri were well in a few days when they were fed upon these whole grain preparations, on natural foods which contain the proper anti-neuritic substances. It was found that the yolk of eggs contains these anti-neuritic substances more than any other animal substances. It was found that meat contained very little. While meat did contain these anti-neuritic substances to some extent, meat contains very much less than the yolk of egg and very much less than barley or lentils. Lentils and barley , whole barley, it was found with the husks on it contain the largest proportion of these anti-neuritic substances. It was found also that a person can eat polished rice without any difficulty provided he take a small amount of these other substances with it as they do in India. In India they always have lentils or pulse of some sort to eat with the polished rice. The polished rice is perfectly harmless; it does not produce neuritis. It may be used in the way which it is ordinarily used in connection with fresh vegetables with perfect impunity. There is no reason why ~~it~~ there should be an outcry against polished rice. It is altogether foolish. It is only when polished rice is an exclusive article of diet and there is no danger of any harm arising from it when fresh vegetables and fruits and these other foods are added to it. It is quite interesting to see that the final ~~authoritative~~ authoritative researches upon this subject show that the Japanese soldiers were not suffering because they did not have meat to eat but only because they lacked the anti-neuritic substances ~~w~~ which is naturally found in whole rice, but which is not found in polished rice, which is removed

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by the process of polishing. But it is found in great abundance in lentils, barley and even in very much larger abundance than it is found in meat, but I must let you go. I thank you for your attention.

End.

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

Thursday, May 22, 1913,

at 8:00 P. M.

by

J. H. Kellogg, M. D.

You have been looking at landscapes and here are some people that live in the landscapes, some friends of ours, relatives of mine that you see here. See how much like the human face that is. Look at the gorilla, the real king of the forest. A human being is a very puny creature compared with the gorilla. That gorilla has splendid muscles and splendid bones. His skeleton which is so nearly like the human skeleton except for the difference in proportion that it would be very difficult to tell the difference. Here, for instance, is the gorilla skeleton and here is the human skeleton. Look at the two. He has longer arms in proportion to the length of his body and shorter legs but you see every single bone is there. The leg bones and the knee bones are here just the same and the arm bones and finger bones, the pelvic bones and the ribs. See that splendid great chest and what broad shoulders. He is actually taller than the man. A full grown gorilla is a giant. A man is a pygmy beside him. Now here is an enlarged picture of a dwarf and you see these dwarf's proportions are the same as those of the gorilla, almost exactly. They are very much like the gorilla only on a smaller scale. Now these creatures of the forest live in a natural way. Man is a primate. He belongs to the same class. Man and the gorilla belong to the same class of organized beings. Now if a man had a horse and a mule in his barn he

would not feed them absolutely differently. He would not feed beefsteak to his horse and cattle and oats and corn to his mule or the opposite. Man has sense enough to know that what is good for a mule is good for a horse because the mule is another species of a horse and the same thing is true with reference to human beings. Man belongs to the same class biologically as the gorilla, as the chimpanzee, as the orangoutang and his organism is the same. His machinery is the same. He has the same kind of teeth, the same number of teeth, the same arrangement of teeth in his jaw. His alimentary canal is the same proportion to the rest of his body. His digestive organs are just the same as those of a man so it is reasonable to conclude that the dietary ought to be the same. Now here we have another picture. Here is a gibbon. He has tremendous finger development and ought to make a fine piano player. Here is the orang with long arms you see and feet. The zoologists used to tell us that the monkey was a four handed animal but that is a great mistake. Mr. Hoxley first called attention to this fact that this was an error and that the posterior extremities of the monkey were feet the same as human feet only different structure. Here is the chimpanzee wonderfully like in human form. We come to more human like the higher up we go. We come nearer to the gorilla. Here is a small ---------- because he has small intelligence but tremendous jaws. If any one of these five species of animals here, the gibbon, orang, chimpanzee, gorilla or man, if any one of them are were selected to be the carnivorous animal the flesh eater, the ferocious beast that goes right into the forest to kill and slay and to eat, if any of them were to be selected, which one would it be? Certainly, you would not think of picking out man as the ferocious meat eater. There is no ground whatever, for that declaration of Lord Byron, "Man is a carnivorous product, he must have prey." It is not true at all. Man is the least carnivorous of these animals, the least inclined to kill, to slay and to eat, the least inclined naturally of all living creatures. He has simply acquired the habit of slaying and eating through some emergency. He has been reduced to

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cannibalism perhaps by starvation or by some other terrible calamity, reduced to such an extremity that he had to take life of some kind and so acquired a taste for blood. Here are some natural people, just as natural as those monkeys are. They live in the forests. They live upon the produces of the forest, upon the bananas and the cabbage palm and the berries and the roots and nuts that they find in the forests, the cocoanuts, and they are equally strong, vigorous and well. These savages that live in the forest are so tough and hard to kill that the English representatives of the first Peace Congress at the Hague insisted that they must have bumbum bullets. They could not dispense those explosive bullets. All the other civilized nations wanted to make a law that bumbum bullets should be ruled out of civilized ~~warfare~~---. That phrase is a misnomer. It is a very absurd phrase, civilized warfare. There can be no such thing as civilized warfare. We only have warfare because we are not thoroughly civilized. When we get well civilized there will be no occasion for ~~more~~ war, and no thought of war. We will recognize the absurdity of war. Many people are coming to recognize this already. We just had a Peace Congress which is certainly a splendid indication that we are beginning to awaken to the fact that we are not civilized as we ought to be. These people that live in the forest are hearty, vigorous, tough, enduring as the wild animals of the forests. Why are we so puny, so -------, so subject to disease when these other creatures of our own species, of our own kind, the genius homo while these people are so hearty, tough, strong and enduring for the one reason that we have departed from the normal course of life, that we have put ourselves in opposition to the great biologic laws that rule the universe of life. We might just as well put ourselves against the law of gravitation or any other of the great laws of Nature. We cannot ~~muff~~ successfully combat these laws. We cannot set them aside. We cannot ignore them. If we disobey them they will ride over us and crush us like a car of ----------. They will compel us to recognize their dominant. Now there

is a girl of North India. She doesn't look as though she was very sickly, does she? She is not quite a wild girl. She is a somewhat civilized girl. She wears one little garment and goes out of doors, workd and toils, is as busy as a bee all day long and lives upon a simple diet of rice with a little hand full of lentils and never tastes anything else perhaps for months at a time but simply rice and lentils and now and then a little taste of melted butter or ghee and she is healthy, strong and well as an orang of the forest or a squirrel, a rabbit, a chipmunk or any other living creature. Now, when we get into the civilized lands, into the great centers of civilization, we begin to find some reasons for becoming sick and diseased. Here is a man killing an ox. See how he does it. He does not kill the ox as a lion would. If man were a carnivorous animal he ought to have a natural means of killing. He does not preserve any such means. A lion possesses a jaw that is sufficient to slay, to kill, to take life, sufficiently powerful. He preserves a powerful implementx for that purpose. Man has no such implement. Just think of a man trying to kill an ox with the grip of his jaw or the blow of his fist. I have heard of the great Hercules who did kill an ox with the bow of his fist but such men must be very skilled. Suppose the man has killed the ox. How is he going to get at it to eat it? Think of trying to tear off the skin with his fingers or his teeth. No one but a starving man would undertake to get food from the carcass of a dead animal if he did not have some artificial instruments to use for the purpose. This man is killing with a hammer. He is not really killing in a natural way. He is committing an assassination, a murder. He has decoyed those cattle in there, decoyed them there. He has trained them to think he is their friend. He has fed them day after day, he has patted them on their hides, patted them to make them think he is their friend and now he has decoyed them into this pen where there is no possible chance of getting away. Then he stands up behind where they can't see what is coming and strikes them a murderous blow that crushes

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in the skull and paralyzes and then tears off the flesh. He thinks he is going to have a dainty morsel for feasting off the flesh of these animals but he does not do so well as he thinks. While he has been ~~bringing~~ training these animals up subjecting them to the same conditions as those in which he himself lived feeding them upon fields that are scattered over with the excreta of his own bowels, communicating disease to them, giving them water to drink that is diluted with the sewage from the great discharges of filth and the sewage from his own dwelling- when he is feeding upon the ~~parts~~ flesh of these animals he reinoculates himself with his own diseases which he has communicated to these animals and which are now coming back to him. Here is tuberculosis, for example. This is a ~~liver~~- cut through showing its ------ of tuberculosis and various infectious maladies. Here is the ileoceval valve of a pig or an ulcerated bowel. Made into sausage nobody would recognize it. It makes fine sausage. ~~They~~ The tuberculous bowel makes fine sausage. Here is a chest all lined with tuberculosis. The butcher cannot afford to throw away a whole half of an animal. He cannot afford to throw it away. It costs him eight or ten or twelve or fifteen cents a pound and he cannot afford to throw it away. Of course not. It makes the finest kind of mincemeat and makes splendid sausage. Here is inside view of that animal you see standing up here. Notice the healthy, splendid looking beef, fat and plump. Looks as though it was as fine an animal as you ever saw. When that animal was killed it was tested with ---- and found to have tuberculosis and when it was killed that is the way it looked inside, great masses of tubercle. ~~There is another case which~~ Here is another case ----------. You don't suppose the butcher is going to throw away all that carcass, do you? He perhaps cuts off a little piece of that lump when there isn't ~~any~~body looking ~~out~~ and tosses it in to make extract of beef out of . He makes splendid bouillon of an extra fine flavor. How many of those animals hung up there do you suppose are thoroughly healthy? When Mrs. Clane (Crane?) of Kalamazoo, one of our neighboring cities here, a flourishing suburb

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of oursm was down at Washington testifying before that committee that was appointed by Congress to investigate the meat inspection scandals which she exposed,not out of her ------ however, because she had the evidence for it all. When she was down there testifying the chief inspector stated before that committee that if all the diseased animals were excludedby the inspectors there would not be one per cent. of the animals that would be passed but if the inspectors ~~xxxxx~~ excluded all animals any portion of which was found to be diseased that not more than one animal in one hundred would pass muster. That is the official statemwnt of the chief inspector of the U. S. Agricultural Department so the inspectors who ~~xx~~ inspect meat do not undertake to throw out the diseased animals. They only throw out as many as they think it will be safe to throw out without raising the price of beef so that it would be prohibitively harm. One of the city inspectors in Chicago,not many years ago,made a perfect statement that if all the animals found to be diseased were ejected the price of beefsteak in Chicago would be one dollar a pound. This was some twenty years ago. You can imagine what it would be now. Animals are more diseased. Meat is higher in price and I think everything taken into consideration,the price of beefsteak would be five dollars a pound at least if the beefsteak came only from healthy animals. Animals are coming to be very ~~xxxxxxxx~~ extensively diseased and because of the association between man and animals and because animals are subjected to the same sort of conditions which has made man diseased. ~~Cancer~~ is a disease unknown to wild men and wild animals but it ---------- among civilized people and domestic animals. Domestic animals, thousands suffer more from cancer than human beings do. At the present time one seventh of all women living who die over 40 years of age die of cancer. That is an awful thing to think of my friends, one seventh of all the women in this room who die over 40 years of age are going to die of cancer and one tenth of the men. I mean unless you change your way of living, unless you turn over a new leaf. Of course, I mean if you go right on in the

same way other people are going, drinking tea and coffee, eating spiced pickles and other things just as they come along eating whatever you take a fancy to eat. People who live that way are dying off of cancer very rapidly. More cats and dogs have cancer than human beings. Did you know that? About seven per cent. of all the cats have cancer. The per cent. probably would be much larger than that if they got old enough and about six per cent. of dogs die of cancer. That is a very common experience to find dogs and cats with cancer. Cows very seldom have cancer and the same thing is true of horses. It is very rare indeed that one in fifty thousand is subject to cancer. Fish are very much subject to cancer. Only a few years ago the United States Government appropriated fifty thousand dollars to pay for an investigation to find out if possible what is the cause of cancer in fish for it was found that cancer had gotten to all the fish hatcheries of the United States.

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Stereopticon Lecture, May 22, 1913. Cont'd from n. b. p. 5570.

So it was found that cancer had gotten into all the fish factories of the United States and infected the fish in all these factories and from these fish factories, cancerous minnows and eggs have been sent out and spread all over the United States so that every trout stream was infected with cancerous trout and every pond where trout and other government fish has been deposited is infected with these cancerous fish. The government sent twenty or thirty million trout eggs over to Australia and when those eggs hatched out, a large proportion of them were found to be cancerous and the same disease broke out in Australia. So the fish of Australia has become infected from the United States.

Here is another picture of this animal morgue. Suppose a mother hog should come in there. Do you suppose she could recognize any of her family. She might possibly. The idea of a person going into such a place as that to find something to eat. That is the place for an undertaker. Coffins are needed there rather than cooks. That is not an original idea of mine. (Plutarch, the author of Plutarch's life, one of the greatest writers of antiquity in writing upon this subject talked about those "layers out" of corpses, the butchers and the cooks) That is where I got the notion.

Here is a tuberculous liver again. (How many people sit down and eat liver with conplacency and really relish it as if it were a toothsome morsel. Just think of the liver with the bile and the urea and the uric acid in it! They are all right there in the liver. That is why the liver is so tasty; that is what gives it the flavor. It is the bile and the uric acid and urea that are in it. Make an extract from the liver and send it to a chemist to examine. Just make some broth out of it, send it to a chemist to examine and he would say that patient is suffering from jaundis, that he found bile in this urine. That is what he would report for the chemical analysis would be exactly that of urine with bile in it from a jaundis patient. I hope you will relish liver the next time you get a chance to eat some.) Just look at that, great masses of tubercles growing. Here is sarcoma, cancer in the kidney of a hog. Now ~~really~~, of course, a really conscientious butcher would not send that cancerous kidney to your table

for you to eat; He would know better than to do that for you might discover it. Somebody might discover it and he would lose your business but he can toss it into a sausage mill, don't you know, and nobody will be any the wiser. Do you have an idea that when a dog is suffering from cancer on one side of his body that the other side of his body would be particularly wholesome? Now you know if you get hold of an apple that is rotten on one side, you can taste that rot on the other side. May be you cannot taste the cancer on the other side of a hog or a cow, perhaps. Perhaps, you don't know just what the flavor of a cancer is and you would think it was pretty good hog, perhaps even with the cancer.

Here are some diseased human livers. Here are some parasites, trachinae. The German authorities tell us that people who go around with pains in their muscles and rheumatism in their muscles has a trachinae creeping around in their muscles and that is why they have this trouble. When a person gets trichinosis and is infected with these parasites, if he sees the pork that has got them in it, they appear as little white specks about as big as the head of a pin, but in the stomach the little sack is digested off and the worm gets free; gets down into the small intestine and is swept through in the current of blood and is carried to the muscles and then finally crawls out of the blood vessel and crawls up there into the muscle tissue and is surrounded with a little sack as you see here and there stays as long as you live. That is the way it looks in the meat; that is the way it looks under the microscope. This is the way it looks when it has just crawled into the muscles and has not got encysted yet. It is rarely ever that the disease is recognized according to Dr. Othler(?)/ the eminent medical authority. It is very rarely indeed that the disease is recognized while the patient is alive. The majority of people who have this disease get over it. Where does the trachinae come from , by the way? The trachinae was first discovered in a deseeting room in Germany. It was a desecting room cuorisity. Every little while somebody would find a muscle with these little specks and they would find trachinae and they didn't know where they came from. By and by after a great feast a number of people were taken sick in this way and accidentally brought out the fact that these people had trachinae in

their muscles and further investigation showed that the pork that they ate, the ham sandwiches which they ate and the sausage had trachinae in it, so they traced it to the hog. Now the question was where did the hog get it. There is no trachinae in green grass or in things of that kind. How could the hog get trachinae. It is an animal parasite that lives only in the flesh of animals. On further investigation a very curious association was discovered. It was found that these hogs had been kept in pens and that the pens were visited by rats and that the rats had trachinae in them. Then the question was where did the rats get it, so there was a study made of the rats that visited the desecting rooms. They were in those days haunted by rats and they found the rats of the desecting room had trachinae. Then you see they found a whole story. A man had trachinae and died. The rat ate the man and got trachinae and died. A hog ate the rat and got trachinae and died. Another man ate the hog that died with trachinae and he got some more trachinae and another rat ate the man so one scavenger ate another and passed the trachinae around. That is the story of trachinae. The next time you sit down at the table and there is some sausage on the table, I want you to think about it and mention it to other folks, tell them about it and see if it improves their appetite.

Here is a picture of a tapeworm. Isn't that a beautiful creature? See what a graceful neck it has. This tape worm is a whole community. Sometimes they are several yards long. Each one of those little squares ar segments is a complete worm. In fact, it is more than a complete worm. It is a married couple. It is bi-sexual so thousands and thousands of eggs are being thrown off continually. It has been estimated that one of these worms will cast off two thousand eggs a day and every man who has got tapeworm is sowing tapeworms all over the country wherever he goes, infecting every sewer to which he contributes and every river into which that sewage empties scattering it around. These eggs hatch out in the water. Down comes an ox, takes a drink of that water and drinks that young tape worm into his stomach and the tape worm is born with a little pair of hooks and those little hooks hitch on to the flesh of the ox, get into his muscles, get a little cyst formed around them, then

a man eats the beefsteak and gets the tapeworm in its second stage with a little pair of hooks that are by this time well grown and these hitch on to the intestine and they grow out and grow an addition on the back end and another addition grown on and the joints get bigger and bigger until by and by at the end portions break off and a tapeworm will sometimes live for hours outside of the body. Sometime ago we went on a hunt for a tapeworm of this sort and finally captured him and the creature was just wiggling around for a long time after it got outside of the body. So you see everybody who has tapeworm is scattering tapeworm. It is an infectious disease. A partnership is formed between the man and the ox to multiply tapeworms and they are multiplying at an enormous rate. There are more oxen that have tapeworm than there were before and more human beings have tapeworm than ever before. So long as we eat meat we will have tapeworm. Stop eating meat and you cannot have tapeworm. Germs of various sorts are derived from these diseased creatures. They are subject to germ diseases as we are and as we eat their flesh we eat their diseases also. An animal has tuberculosis. You eat the animal and you eat the tuberculosis right along with the rest of him and you get the tuberculosis. Children get tuberculosis in taking the milk of tuberculous cows. People get tuberculosis in taking the raw or under done flesh of tuberculous animals. Prof. Ehrlich maintains that tuberculosis nearly always enters the body through the stomach and not through the lungs. That is a very interesting observation and there is accumulating evidence that that is true, that tuberculosis most often gets into the body through the stomach and not through the lungs. Prof. Ehrlich says that even when we inhale the germs of tuberculosis these germs do not get in through the lungs but the germs are swallowed into the stomach and find their way up into the lungs through the mesentery glands and the mediastinal glands and get into the lungs in that way rather than through the air passages. That is a very important fact. Cooked tuberculous germs are not very dangerous if you like them. I think that they are more wholesome vegetables a great deal than tuberculosis germs. I would rather have lettuce and cabbage or something of that kind. Tubercle germs, however, are not always cooked by any means. Here are some tuberculosis

germs in your beefsteak, liver or kidney that you are eating, very likely to be in those organs and you are eating this flesh. You think, "Well it has been cooked, so I guess it is all right." May be if it is cooked enough on the outside. People are learning more and more to eat rare steaks and everything rare. The outside layer may be cooked and the germs may be destroyed but on the inside the temperature rarely ever is high enough to destroy the germs. Some of these germs require a temperature of two hundred and forty degrees and that temperature is never reached in the cooking process. Even in the baking process, the termperature of 240 degrees is never reached, for the temperature cannot rise above boiling temperature except in a little upon the surface.

Here are some of the parasites that get into the body from the use of the flesh of animals and sometimes a few from some other sources. Here are some of ther germs that infect the intestines that produce various forms of diarrohea and dyssentery. These are all germ diseases and they grow in bouillon and broth particularly. Here are some germs of typhoid fever. These germs do not come necessarily from flesh but animals are not subject to typhoid fever to any great extent. Here are some of those germs growing upon a gellatin surface. Here are the germs that make boils, Here are some tubercle germs; here are some of the casts that are found in the urine from Bright's disease of the kidneys. Here are some influenza germs. There are several germs capable of producing this disease. (Flesh eaters are not only contracting the disease from these germ diseases, from animals, but by the use of flesh, the vital resistance of the body is reduced.) Here are some typhoid fever germs showing the flagellae by means of which they move about. Flesh eating reduces the resistance of the body to such a degree that the body is more likely to contract diseases of various sorts. Here are the heads of these tapeworms. Here are different sections, different stages of the development of the tapeworm. Here are two kinds of germs, friendly and unfriendly. The little red ones are the sort of germs that produce putrefaction. These are always found in the colon when the bowel discharges have a bad odor. The long blud ones are the germs that produce lactic acid. These are

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friendly germs. They are the germs that maintain a healthy condition of the intestine. Here are some other parasites. Here is the ameba that grows in the intestine and produces certain forms of dysentery. These are found in flesh eaters. (An expert we had here some time ago who had been employed for some months by the United States Government to study the stools of pollegra patients made a thousand observations and found a large number of cases in which the ameba was present in the case of flesh eaters but only one of two observations in which these parasites were present in the stools of persons who did not eat meat.) The tubercle germ here as you see is found in the sputum. This little particle of sputum that has been examined contains these tubercle germs and this shows the germs found in it. There are the germs of leprosy. (It is believed by a great many that leprosy is due to eating diseased fish.) Now I thought it would interest you to read a paragraph or two from this essay of Plutarch's on flesh eating that I told you about the other day.

(Copy the first paragraph from Plutarch essay on Flesh eating)

Think of it, this was by Plutarch, author of Plutarch's life, the modol biographer. This was written two thousand years ago. "How could his eyes endure the spectacle of the flayed and dismembered limbs. How could his sense of smell endure the horrid Now I ask was his face not sickened by contact with festering wounds, with the pollution of corrupted blood and huses."

There was a doctor from Detroit, visited us to day. The doctor is an X-ray specialish and he came up to visit our X-ray department which is attracting a good deal of attention. Some specialist is here almost every week from some part of the country to see the extraordinary work that is being done in our X-ray department. I do not say that boastingly but it has come to be recognized as a fact that it is so widely spoken of that it is not perhaps immodest to

recognize the fact at home. This doctor came up to the operating room while I was at work to see me and to shake hands with me. He said, "Doctor, I am glad to be intimate

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5576 Stereopticon Lecture. (Meat eating) (May 22)

This doctor came up to the operating room while I was at work to see me, to shake hands with me. He said, "Doctor, I am glad to meet you. I have been wanting to meet you for a long time." He said, "Doctor, do you know for fifteen years I have not eaten any meat except a few times when I have been away from home, and we have a girl fourteen years old who has never tasted a particle of flesh. We do not eat it in our home. We are a great deal better off without it and we share with you the feeling that it is a strange thing human beings could ever learn to eat it. That daughter of mine when she was four years old could not live in a house where flesh was cooked. When we would take her to a room at the hotel she could not stay in the house. The odor of cooked meat in the house made her ill so that whenever we offered her food she was sick and would vomit and we had to take her outdoors to feed her. Whenever we went away from home we had to do that thing until she was four or five years old and even now if there is flesh on the table it sickens her. She would turn pale and become sick at her stomach and was very seriously affected by it. That reminds me of a remark made by a missionary some years ago from Japan who had been a missionary there a number of years. After he had been here for two or three weeks as he was standing back and said said, "Doctor, I have learned a lesson while I have been here. I have found that I can live without meat and I have learned to appreciate something I did not appreciate before." I will tell you a story to illustrate it. I had a very fine housekeeper, a Japanese woman who was remarkably capable. She had been with me a couple of weeks and I was very much pleased with her because she was such a capable woman. She came to me one morning and said, "Oh, honorable Sir, I can no longer remain in your employment. I must leave today;"but" I said, "Why do you want to leave, don't

we treat you well?" "Yes, very well indeed, sir," ~~said~~ "but oh, honorable sir, I can no longer endure the smell of burning flesh in your house." She left him because she could not endure the smell of burning flesh in his house. "Now," he said, "when we go home, we wont have the smell of burning flesh any more, so I will have a good housekeeper." So you see there are many people who appreciate that. That is a natural instinct. But he had followed the teaching of Pythagoras until he had gotten a natural sense and horrible
a normal attitude toward this/custom of flesh eating. "How I ask, was his taste not sickened by contact with festering wounds, with the pollution of corrupted blood and juices? 'The very hides began to creep, and the flesh, both roast and raw, groaned on the spits, and the slaughtered oxen were endowed, as it might seem, with human voice.' This is poetic fiction; but the actual feast of ordinary life is, of a truth, a veritable portent-- that a human being should hunger after the flesh of oxen actually bellowing before him.

I was walking along with a man in the streets of Chicago, a man ~~wh~~ with whom I had some business; we saw an ox that was being led to the slaughter, and the man looked at him and I noticed him smack his lips. "Why," I said, "my friend, why are you smacking your lips?" "Oh," he said, "I was thinking I would like a piece of him for dinner." "Oh," I said, "what a horrible idea." I expect some go out and take a back off a sheep or a cow or something that is going along the street. He was actually hankering for that living creature. Now I cannot understand how any human being could be possessed with such an appetite as that,--that a human being should hanker after the flesh of oxen and cattle bellowing before him.

He first the taste of flesh from tables drove,
and argued well, if arguments could move;
O mortals, from your fellows' blood abstain,
Now taint your bodies with a food profane,
While corn and bulse by nature are bestowed,
And planted orchards bend their willing load;
While labored gardens wholesome herbs produce,
And teeming vines afford their generous juice;
Nor tardier fruits of cruder kind are lost,
But tamed with firs, or mellowed by the frost;

While earth not only can your needs supply,
But, lavish of her store, provides for luxury;
A guiltless feast administers with ease,
And without blood is prodigal to please:
Wild beasts their maws with their slain brethren fill;
And yet not all, for some refuse to kill;
Sheep, goats, and oxen, and their nobler steed,
On browse, and corn and flowery meadows feed.
Bears, tigers, wolves, the lion's angry brood,
Whom Heaven indued with principles of blood,
He wisely sundered from the rest, to yell
In forest, and in lonely caves to dwell;
Where stronger beasts oppress the weak by night,
And all in prey and purple feasts delight.
O, impious use! to nature's laws opposed,
Where bowels are in other bowels closed;
Where, fattened by their fellows' fat, they thrive;
Maintained by murder and by death, they live;
'Tis then for naught that mother earth provides
The stores of all she shows, and all she hides,
If men with fleshy morsels must be fed,
And chaw with bloody teeth the breathing bread;
What else is this but to devour our guests,
And barb'rously renew Cyclopean feasts?
We, by destroying life, our life sustain,
And gorge the ungodly maw with meats obscene.
Not so the golden age, who ged on fruit,
Nor durst with bloody meals their mouths pollute,
Then birds in airy space might safely move,
And timorous hares on heaths securely rove;
Nor needed fish the guileful hooks to fear,
For all was peaceful; and that peace sincere.
Whoever was the wretch (and cursed be he)
That envied first our food's simplicity,
The essay of bloody feasts on brutes began,
And after forged the sword to murder man—
Had he the sharpened steel alone employed
On beasts of prey that other beasts destroyed.

Or man invaded with their fangs and paws,
This had been justified by nature's laws
And self-defense: but who did feasts begin
Of flesh, he stretched necessity to sin.
To kill man-killers, man has lawful power,
But not the extended license to devour.

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From whence, O mortal man, this gust of blood
Have you derived, and interdicted food?
Be taught by me this dire delight to shun,
Warned by my precepts, by my practice won:
And when you eat the well deserving beast,
Think on the laborer of your field you feast!

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Ill customs by degrees to habits rise:
Ill habits soon become exalted vice.
What more advance can mortals make in sin,
So near perfection who with blood begin?
Deaf to the calf that lies beneath the knife,
Looks up, and from her butcher begs her life;
All methods to procure thy mercy tries,
Deaf to the harmless kid, that ere he dies,
And imitates in vain thy children's cries?
Where will he stop who feeds with household bread,
Then eats the poultry which before he fed?
Let plough thy steers, that when they lose their breath,
To nature, not to thee, they may impute their death
Let goats for food their loaded udders lend,
And sheep from winter cold thy sides defend;
But neither springs, nor nets, nor snares employ,
And be no more ingenious to destroy,
Free as in air let birds on earth remain,
Nor let insidious glue their wings constrain;
Nor opening hounds the trembling stag affright;
Nor hooks concealed in bait for fish prepare,
Nor lines to heave them twinkling up in air.
Take not away the life you cannot give;
For all things have an equal right to live:
Kill noxious creatures, where 'tis sin to save;
'Tis only just prerogative we have:
But nourish life with vegetable food,
And shun the sacrilegious taste of blood.

Here is Ovid's account of the view of Phythagoras that I want to read to you.

"You ask me upon what grounds Pythagoras abstained from feeding on the flesh of animals. I, for my part, marvel of what sort of feeling, mind, or reason, that man was possessed who was the first to pollute his mouth with gore, and to allow his lips to touch the flesh of a murdered being; who spread his table with the mangled forms of dead bodies, and claimed as his daily food what were but now beings endowed with movement, with perception, and with voice.

"How could his eyes endure the spectacle of the flayed and dismembered limbs? How could his sense of smell endure the horrid effluvium? How, I ask, was his taste not sickened by contact with festering wounds, with the pollution of corrupted blood and juices? 'The very hides began to creep, and the flesh, both roast and raw, groaned on the spits, and the slaughtered oxen were endowed, as it might seem, with human voice.' This is poetic fiction; but the actual feast of ordinary life is, of a truth, a veritable portent—that a human being should hunger after the flesh of ox oxen actually bellowing before him, and teach upon what parts one should feast, and lay down elaborate rules about joints and roastings and dishes. The first man who set the example of this savagery is the person to arraign; not, assuredly, that great mind which, in a later age, determined to have nothing to do with such horrors.

"For the wretches who first applied to ~~skunk~~ flesh-eating may justly be alleged in excuse their utter resourcelessness and destitution, inasmuch as it was not to indulge in lawless desires, or amidst the superfluities of necessaries, for the pleasure of wanton indulgence in unnatural luxuries

that they (the primeval peoples) betook themselves to carnivorous habits.

"If they could now assume consciousness and speech they might exclaim, 'O blest and God-loved men who live at this day! What a happy age in the world's history has fallen to your lot, you who plant and reap an inheritance of all good things which grow for you in ungrudging abundance! What rich harvests do you not gather in? What wealth from the plains, what innocent pleasures is it not in your power to reap from the rich vegetation surrounding you on all sides! You may indulge in luxurious food without staining your hands with innocent blood. While as for us wretches, our lot was cast in an age of the world the most savage and frightful conceivable.

"Besides and beyond all these reasons, does it not seem admirable to foster habits of philanthropy? Who that is so kindly and gently disposed towards beings of another species would ever be inclined to do injury to his own kind? I remember in conversation hearing, as a saying of Xenokrates, that the Athenians imposed a penalty upon a man for flaying a sheep alive, and he who tortures a living being is little worse (it seems to me) than he who needlessly deproves of life and murders outright. We have, it appears, clearer perceptions of what is contrary to propriety and custom than of what is contrary to nature. . . .

"Reason proves both by our thoughts and our desires that we are (comparatively) new to the reeking feasts of kreophagy. Yet it is hard, as says Cato, to argue with stomachs since they have no ears; and the inebriating potion of Custom has been drunk, like Circe's, with all its deceptions and witcheries. Now that men are saturated and penetrated, as it were, with love of pleasure, it is not an easy task to attempt to

pluck out from their bodies the flesh-baited hook. Well would it be if, as the people of Egypt turning their back to the pure light of day disembowelled their dead and cast away the offal, as the very source and origin of their sins, we, too, in like manner, were to eradicate bloodshed and gluttony from ourselves and purify the remainder of our lives. If the irreproachable diet be impossible to any by reason of inveterate habit, at least let them devour their flesh as driven to it by hunger, hunger, not in luxurious wantonness, but with feelings of shame. Slay your victim, but at least do so with feelings of pity and pain, not with callous heedlessness and with torture. And yet that is what is done in a variety of ways.

"In slaughtering swine, for example, they thrust red-hot irons into their living bodies, so that, by sucking up of diffusing the blood, they may render the flesh soft and tender. Some butchers jump upon or kick the udders of pregnant sows, that by mingling the blood and milk and matter of the embryos that have been murdered together in the very pangs of pafturition, they may enjoy the pleasure of feeding upon unnaturally and highly inflamed flesh! Again, it is a common practice to stitch up the eyes of cranes and swans, and shut them up in dark places to fatten. In this and other similar ways are manufactured their dainty dishes, with all the varieties of sauces and spices (Lydian sauces, composed of blood and spices)--from all which it is sufficiently evident that men have indulged their lawless appetites in the pleasure of luxury, not for necessary food, and from no necessity, but only out of the merest wantonness, and gluttony, and display."

Now that is a funny coincidence, isn't it? That was written by Ovid, one of the greatest classic poets, and was written concerning the views of Pythagoras, which were preached three hundred years before Christ. Pythagoras was the first of all Grecian philosophers. Pythagoras made the foundation for the philosophy of Greece afterwards taught Socrates, and it was advanced and perfected by Plato and finally formulated by Aristotle. It all began with Pythagoras and all these men were really and finally by Pythagoras in his antagonism for flesh-eating. There is Old Parr Tarr, a man who tried natural living, the simple and natural life of the soil.

He was a day laborer, a hard working man,

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Lecture of May 22 cont.--5578.

His diet was buttermilk, potatoes and very coarse bran bread and this man lived to the age of 152 years and nine months and this picture is from the original by Peter , Paul. Rubens which is now in the possession of an eminent English gentleman. You see that is a fine old face faith. It is a splendid thing to live 100 years. (He lived to this great age because he lived the natural simple life. This answers the question, Can a man live long and stillhave good health on a non-flesh diet. Old Par tried it. Finally when he was 152 years old he went up to London to visit the king and the king feasted him for two or three weeks and then he had a fit of indigestion which carried him off and he died and when Sir William Harvey the discoverer of the circulation of the blood examined his body he did not find a single hard artery in it. His face did not show the marks of age in it.) I met a lady yesterday 35 years of age and one today 63 years of ago whose skin looked as old as you would expect to find it in a person 100 years old, the result of these wrong habits of life. This is the thing that is destroying the constitution, the wrong habits and particuarly bad habits of eating that make people prematurely old. We must change our entire practice. We must begin to live naturally, outofdoors in the fresh air and drink an abundance of water, eat only pure foods, discard all these foods that can putrefy outside the body or inside the body and that is the way we will cultivate health. Now, I promised to show you a very ancient beefsteak and I have it here in this can of milk. (Here is a beefsteak that has been in pickle in some Yogurt buttermilk for five years next June and it is perfectly sweet. It is not a particle decayed.) It is still just as tough as it was originally so if any of you wish to examine it you can come up here and take a look at it.

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I promised also to show you tonight something else. Somebody asked me what about raised bread and I brought in here some new bread and I told you I would make a base ball out of it. We will see whether it works or not. You take bread the same day it is made when it is just the way you think it is really good and you see can make a good base ball out of it. You see this one is still impact after having thrown it upon the floor. Now when you have eaten ordinary warm bread I have been throwing this right on a strong floor here you see. When you eat warm bread or warm biscuit it is divided upon into little pellets. It is not a cannon ball like this but grapeshot or buckshot and it gets down into your stomach in the form of little buttlets which are absolutely indigestible. The digestive juices cannot attack those bullets at all. The bread must be pliable so you can comb it up with the fingers so it won't stick in this form. A biscuit is an ordinary sticky mass, is absolutely indigestible, one of the worst things you can put into your stomach. We supply our tables with bread in an absolutely wholesome form with flakes of various sorts. That is why I invented these flakes. The different kinds of flakes were originated here. I had them made, devised machinery, worked up the whole process to supply our patients with bread in perfect form and these flakes have been imitated in various ways firms are making fottunes from making and selling these but they were first made in my own kitchen. I cogitated over the subject for a year or two trying to find out how to do it and finally dreamed it out one night and made some flakes that very day. These flakes and the granose biscuit and the Good Health biscuit and breads of that sort are perfectly wholesome. The raised bread, I wish we never had to bring a loaf of it into the house again because I know every morsel of it that is eaten is more or less unwholesome. If you must have it, have it toasted until it is dry. Fresh toast that people like is the best bread. Bread that has been toasted a little outside and is very soft inside is just like new bread, next page

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and has all the evil qualities of new bread. Bread toast, to be good, must be toasted so it is brown clear through, and all hard and crisp.

But I see it is getting late and I must let you go. I thank you for your attention.

END.