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

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by

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Q. Will the free use of bran, colax and para-lax produce a habit or such a condition as to use these things continually?

A. Now, this is a good deal like the question, will the use of bread and potatoes and fruit and things of that kind produce a habit making it necessary to use those things continuously. Now, yesof course it will. Now, when one gets into the habit of eating he has to keep right on eating. When one gets into the habit of using bread and potatoes and foods of various sorts he must continue to use those things because they are necessary for his body. Colax and bran are the same thing in differene form. Bran is cellulose and colax is cellulose also. Colax is hemi-cellulose. Colax is a kind of cellulose found in apples, potatoes and all kinds of vegetable food while bran is a coarser kind of cellulose. It is hard, dry, woody cellulose. It really is wood butitis composed of cellulose. Para-Lax is simply a lubricant. Now you know it is absolutely necessary that the human bill-of-fare should contain a certain amount of wood, a certain amount of waste material and one reason why inactivity of the bowels has become a normal universal condition among civilized people and perhaps the greatest and the most prolific of all causes of disease is because of the use of a too concentrated diet. Now a man knows perfectly well he has got to feed his horse,and his cow and his pigs and his chickens a certain amount of roughage. If the chicken does not have other material it will eat feathers, it will eat sand and featherms. It has to have sand and feathers to keep the bowels regulated unless it has the proper amount of in the food. Some years ago, well 100 years ago as well as I can recollect I ready this story something like 40 years ago

and it was 75 or 80 years before that time so it is more than 100 years that this circumstance occurred. A captain started from Portland, Me. with a cargo of horses and of mules for Jamaica and he had on board a lot of corn and hay to feed his horses and the mules When he got down out of the Carolinas they met a great storm opposite Cape Hatteras and the waves swept away all of their Hay which was bunched up on deck. The hay was all swept overboard, so they had nothing left but the corn and pretty soon the horses began to die and every day they were throwing overboard two or three horses and they became very much disheartened about it because they were going to leave the whole cargo before they got to Jamaica. One of the sailors observed a circumstance which he reported to the captain. He found that the mules were starving. Not a single mule had died but only the horses were dying. They investigated this matter and found that the mules were eating up the ship. There were nine (Grey gnawing?) away at the partitions in their stalls and the sides of the ship wherever they could get hold of it and eating quantities of their corn along with their boards and they were all starving. The horses were dainty and would not eat the boards so the captain set the ship carpenter at work making shavings for the horses. Some of the horses ate the shavings and they thrived with the mules. The mules all arrived at the end of the journey in good condition but more than half of the horses were buried at sea because they would not eat the shavings. Now, that is what is the matter with the average man. He does not eat enough shavings, enough straw not enough wood and stubble. We have got to have more roughage. Now the reason why bran is necessary for the food is because you leave the bran out of the bread. You eat white bread that has no bran in it. One fifth of the wheat is bran and this bran in the wheat contains from thirty-five to 100 times as much of the necessary and useful salt which go to make the bones and the blood and to sustain the nerves of the body. The bran contains just 35 to 100 times as much as the salt as is found in the white flour. So you see how very important it is that we should use the whole grain and there is nothing more disasterous and nothing has done more harm to civilized people than the too refined methods of milling, getting our

bread whiter and whiter and whiter and more ~~superfine~~ superfine improving our rice, breaking off the outer covering of the rice and serving it up in a polished and superfine and white condition. In this way we have lost a large amount of the most necessary nutriment. Now man seems to have entertained the egotistical idea that he can take the food products that God makes, the perfected products of mother Nature that are intended for our use. Man seems to entertain the conceited notion that he can those perfect products and manipulate them as he likes, subtract anything he likes, add to them anything he likes and still they will nourish his body properly. How perfectly absurd that is. You would not think that of Suppose you should undertake to treat a horse as you treat yourself. Suppose a man with a horse that eats hay thinks it is too bad to make ~~t~~ a horse eat this hay raw so he says we will cook it for the horse so he cooks the hay and turns all the water down the sewer and gives the horse ~~the~~ what is left after ~~forming~~ turning the water down the ~~sewer~~ sewer. That is the first thing. Now, we would say it is a pitty to make a horse chew this corn and grind it up, it is awfully hard work. We will cook it for him, make it nice and soft so ~~that~~ he can swallow it quick so we convert the corn into meal and make into mush, have all the bran taken off from the outside of it and the inside of the corn is separated and made into the form of a mush and fed to the horse in that way. The horse would eat it rather than starve to death of course, but the horse could not live three months on such a diet as that. Now, that is exactly what a man does to himself. I dare say there are people in this room that have gone on for months and months of their lives without eating a single thing that was not cooked, every single morsel. Just think it over, how many times you have eaten a meal and gone on for weeks and weeks and every morsel you ate was cooked. Now cooking does something to the food that hurts it. Cooking damages the good. The professor of physiology in the University of Christiania in Norway the National University of Christiania ~~was~~ at the International Congressand Hygiene at Washington last September read a very interesting paper in which he gave the account of the large number of experiments he made during the long series of years and the affect of cooking on food and he has made the discovery that the cause of

that awful disease ~~xxxx~~ scurvy that used to carry off so many thousand of sailors and of soldiers in armies that that disease is due to cookery, is dueto cooking the food. He found for instance thatif you took wheat and cooked this wheat and fed it to rats they all got scurvy and died, but if you fed it to them raw they did not have scurvy at all but lived well. We found the same thing is true of beans and peas and various other things and he experimented with different temperatures at which different foods were rendered incapable of nourishing the body by cooking so we know now that the important thing about feeding great bodies of men is that they shall have a considerable amount of uncooked food and the same thing has been found out about babies. When it was discovered that the germs of milk caused infantile diseases three hundred thousand babies dying in the U. S. every year and it is cow's milk that kills almost all of them. Nine tenths of them are killed by cow's milk. There is no doubt about it. It is the germs in cow's milk, the filth that comes from the barnyard ~~of the cow~~ rubbed off the cow scattered around through the air falling into the milk pail, it is this horrible filth in the milk and the germs that kill the babies. Now it is found that the boiling of the milk would kill the germs. Then the milk die not produce these awful diseases, did not produce the bad affects that had formerly been traceable to it but it was not more than a year or two before the discovery was made that this of sterilized milk also killed the babies. For a while the babies seemd to thrive but by and by they would begin to waste away. Their joints would begin to swell, their mouths would get ~~mouth~~ sore and they would begin to waste away; did not do well. They got scurvy, rickets and died so the discovery was made that it was necessary to give something besides sterilized milk to the baby. The baby fed on sterilized milk must have the juice of an orange every day and the juice of one orange would save the baby from almost absolutely certain death so we are finding out more and more that there are great priniciples in Nature that cannot be ignored. We are discovering every day some new thing about that that we have got to get nearer to Nature, that we have got to treat ourselves just as sensibly as we treat our horses, cows, chickens, dogs, and pigs. We do not treat ourselves so well. The farmer takes his fine wheat that has been

created in splendid perfection just what he needs to nourish every atom of his body, he takes that fine wheat,carries it off to the mill, and he has it separated, takes off the bran which he needs himself for roughage, puts that in one parcel and then he takes off the inside of the bran that rich,albuminous material that he needs to build up his own blood and that contains the salt necessary for building of the blood and purifying the tissues, he takes that and puts it into another parcel. Then he has another very fine superfine material in the middle of the grain. That is of the least value of all. He puts that in another parcel. He takes these three home. In the last one the inferior part that fine white and innutritious and inferior part of the grain he feeds to his wife and children and eats himself, and The bran and the meal is the part of the grain that is most valuable. That he feeds to his pigs and horses and cows and that is the reason why a farmers pigs flourish so handsomely.why they get to fat and plump and bring such a big price when the wife and children and the farmer himself are becoming more and more depreciated every day and wasting away. The farmer treats his pigs better than he does himself. The time has come when we ought to learn some lessons from the great success that is being made in this country in raising livestock. That ought to be a great object lesson to the people.as what might be done for human beings if we would only treat them in the same sensible way but unfortunately we do not study human hygiene. We study pig hygiene, horse hygiene, and hen hygiene and cow hygiene but human hygiene we entirely neglect. It is amusing how stupid we are. Think of it my friends, just think of it for a moment. I ask you this little question. Suppose I ask you how many peo-le there are here that have got 32 sound teeth in their mouths. Hands up, let me see. Not a single hand. There is not a single soul here who raised a hand to indicate they had 32 sound teeth in his mouth. I suppose there may be two or three people here that have 32 sound teeth they have bought of the dentist but I am talking about the home product teeth. We have got one young woman in this house that has 32 sound teeth. She is a member of our Nurses' Training School.

black hair and is a black eyed girl with long black eye lashes and rosy cheeks and a dark complexion. She is a Persian girl and is a fine specimen of young womanhood as fine a specimen as you ever saw in your life and if you could see her teeth every tooth is a prefect beauty and when she smiles you can see that her teeth are the whitest most regular ~~most perfect~~ absolutely perfect set of ivories you ever saw in your life. She has never consulted a dentist in her life. I had her go down to our dentist the other day to see if she could find a flaw in her teeth and he could not find one single flaw. They were perfect not only in ~~position but perfect in form~~ condition but in shape and form. I asked the girl how she was raised, what her diet was. "Oh", she says, "We ate coarse bread and fruit and vegetables". Did you eat meat? Oh, we had very little meat rarely ever tasted of it but we lived mostly on fresh vegetables and wheat and that is diet of the orient. That is the diet of the sturdy people that are fighting those battles out there in the Balkans at the present time of the Bulgarians that have been doing such stupendous feats that they have really astonished the world, the feats of endurance that the whole world has been astonished at. Those Balkan people have been doing these things the last few months. How have they done it? If you could see ration the American soldiers takes (Balkans?). You would find it was dried wheat boiled while it was whole before grinding, just boiled then dried then ground or cracked. We have it hear and we call it crystal wheat and it is simply the entire wheat and this entire wheat with Yogurt Buttermilk and fresh vegetables is their dietary. Meat is the rarest thing that ever enters into the daily bill of fare at all and they are tough and hardy enduring men and the longest lived people in the world. In Bulgaria one man in every thousand is 100 years old or older. In the United States there is only one in every 25000, insane one in 40,000, in France one in 200,000 and in Germany only one in 200,000. Now just think of that difference, 700 times as many centenarians ~~centenarians~~ in Bulgaria as they have in Germany in proportion to the population. 3,000,000 people in Bulgaria and three thousand of them centenarians, while in Germany, that great country with 55,000,000 people, there are only 76 centenarians and the number is diminishing

every year. In a few years there won't be a single one in the whole great empire. It is simple living. Now this use of roughage is necessary. It is not necessary for you to buy sterilized bran of our food department. You can go to a mill and get your own bran and you can sterilize it yourself. All you have to do is to moisten it, put it in an oven and bake it well at a high temperature highenough to kill all the germs, then you have it already for use and in the great majority of cases, persons who are making use of Colax only take Colax because that is cellulose in a convenient form. If you take enough bran it will answer the same purpose in the majority of cases, but many people do not like to use bran. Let me tell you how you can work it in conveniently so you will won't find any inconvenience from it atall. Tell the cook when you go home, now I want some bran every day in my oatmeal. I want you to put one-third bran into the oatmeal, sterilized bran. Don't take the ordinary bran from the mill because it is awfully dirty stuff. It is full of bugs, has got weevil in it and all kinds of vermin, cockroaches and germs of various sorts and you want to get rid of those. At least you want them dead before you eat them.

Question Box Lecture of February 24 continued from page 4451 in note book. So it is necessary to clean it out. Now in preparing our sterilized bran we take a little pains. In the first place we get the very finest wheat from the north west, then it is polished by all the processes known to modern milling until it is thoroughly clean. But you cannot get it thoroughly clean that way. There is a little crevice in which the dirt hides away so we have to wash the wheat. So we take it and thoroughly wash it, then it is ground and afterwards the clean bran is taken at once before it has had any time to get infected with weevil or anything of that sort and it is sterilized in a retort at a temperature of 240° and that kills every possible germ that might be in it. It is absolutely free and clean, so one can have the satisfaction of knowing he is not swallowing a menagerie when he eats hisbran. Add one part of this bran to three parts of oatmeal or any other breakfast food and tell the cook to cook it three or four minutes, not to cook it three or four hours until it is a pasty mass and forms lumps, but cook it just three or four minutes, not a minute more. The bran does not require cooking and the best oatmeal is the steel cut oatmeal. I recommend this for this purpose. Mix it with bran and cook it for fifteen minutes then when you swallow that mush in the morning, when you are eating it, when you swallow it you take along with the nutritive part a sufficient amount of roughage to insure its rapid passage from the stomach down to the intestine and the colon and there will be some starch that will get into the colon undigested and that is just what you want. When you take the oatmeal cooked in that way it is not quite so digestible, but the trouble is the food we eat is too digestible,--that is we want more indigestible material. It is not the best property of food that it should be so extremely digestible that every bit will be digested. That is a great mistake. We have labored under the great error trying to get more and more digestible food all the time. That is just what we do not want. We want some indigestible material, so we cook the oatmeal fifteen minutes, then some of the oatmeal will get down into the colon without being digested and

absorbed and that is just what we need down there because there are a whole lot of colon germs down there that live on protein and they find plenty of protein because the bile flows down into the colon and the pancreatic juice gets down there and other secretions that have a large amount of protein in them and the germs can feed upon this protein but if you have some starch down there, then these wild germs that feed on protein and produce poisons out of it if there is some starch present they prefer the starch and will act upon the starch and when the starch is present they do not act upon the protein and do not produce putrefaction, so the process of putrefaction will be to a large degree prevented and corrected. In other words these wild germs that inhabit our interiors may be reformed by reforming our diet and that is the purpose of a change in diet, that is the principal purpose of a change in diet. It is not what is in the meat that we are so much afraid of, it is what becomes of the meat after it is eaten. It is the putrefactive process that is incurred and developed in the colon by the undigested remnants of meat, you see. If you have got a piece of meat lying around in your interior, the very same thing happens to it there that would happen to it lying around in the pantry. You know very well that if you have some odds and ends of codfish and halibut and roast beef and various other things, steaks, etc. lying about in the pantry or the cellar unused, you know things would get to be very unsavory after while because of the putrefaction. Now when we eat the meat or even if we do not eat meat there are always some portions of food that are not digested and there are the excretions themselves and these secretions and undigested food substances undergo putrefaction and we must prevent that by taking a larger amount of bulky and indigestible material. (Now Para-lax is a substance which simply lubricates so helps along the bulky material. In persons whose colons have become crippled in which kinks are formed in the colon, bulky material sometimes banks up on the proximal side of the kink and makes an obstruction so the bowels become very inactive and a great amount of gas is formed when bulky food is used, but if you use Para-lax as a lubricant this bulky material slips over the kink

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which is unfolded. The bowel is expanded, spread out and the bulky material passes along and in that way facilitates the bowel action so the two taken together make a very happy combination. The important thing about the use of Colax and Para-lax is that there are absolutely non-irritating. Now you say, why can't I use a dase of salts, why can't I take mineral water, why can't I use citrate or magnesia or Pierce's Pleasant Purgative Pallets or some other thing of that sort, why can't I use Cascara Sagrada or some of these other so-called harmless remedies, cascarets, etc? Why can't I use some of these things? The reason why is because every single drug that will move the bowels, every single mineral water, natural or attificial that will move the bowels acts by virtue of the poison which it contains, which is an irritant and acts upon the bowel and the effect of these irritants is to produce colitis sooner or later. They all produce colitis and the worst cases we have here are the cases of patients who have used laxatives of various sorts and mineral waters for a long time until the whole bowel has gotten into a state of rawness irritation, colitis because of the affect of these drugs. Now Colax and Para-lax are absolutely unirritating. They move the bowel by acting in a natural way. They are supplimentary foods, not really drugs but supplimentary foods. The Colax is simple material, such as is naturally found in the food. A person whose colon is crippled needs to take a larger amount of bulky and lubricating material than a person who is in a normal state requires. Now there is this advantage in the use of these remedies also, that after the bowel has been trained after long use the amount required may not be so great. For instance a person at the beginning has to use four or five tablespoonfuls of Para-lax but after awhile the same person may not need more than one or two tablespoonfuls. That amount will be sufficient for a dose. I have in mind this moment a patient who found that one single teaspoonful of Para-lax taken at night every other day was found to be sufficient to keep the bowels moving normally three times a day and that is the normal way in which the bowels should move. If your bowels do not move three times a day, you are being poisoned. Probably there are already brown spots on your hands and you

have a dingy skin and these are indications that the bowels are not moving frequently enough. They ought to move three times every day. The natural way is for the bowel to move after every meal. Food is a natural laxative. When there is an intake there ought to be an outgo. When material is taken into the stomach, the stomach is set in motion and this motion is transmitted down to the intestine all the way along and there ought to be a thorwing off of the waste material at the lower end of the alimentary canal whenever new material istaken in at the upper end, so the bowels ought to move after every meal and if this does not occur there is an accumulation of the waster material that ought to be discharged but when it is not discharged it remains to decompose and poison the body.

Q--If a person needs twenty-one hundred calories of food a day, 700 calories at each the three meals and feels heavy after eating this quantity at a meal, should he eat 700 calories at a meal anyhow just because he needs it.

A--I should say yes he should eat what he needs, but he should do some things to relieve that heaviness of course, and here are some things you can do which are very effective. One thing he can do is to take the food a little more slowly and another thing for him to do is to lie down after a meal and that is very important for such cases, sometimes to lie down on the right side and take a few real deep breaths, lie down for an hour and take every five minutes six or eight very deep breaths. You will be astonished to see how quickly that heaviness will disappear. That is why we have the after-dinner exercise in the gymnasium and the exercises after breakfast and after supper in the gymnasium. It is to set the diaphragm and the breathing apparatus to going. That relieves the congestive state of the stomach and relieves the heaviness. Any number of people have told me they found a little exercise after meals relieved that heavy sensation they had, but if you have a good deal of pain and distress and are not very strong, it is better to lie down upon the right side and rest. It is a good thing to draw up the knees, to curl up. Just lie down all curled up in a heap on your fight side and take half a dozen deep breaths every five minutes and con-

tinue that for an hour for a few days and the heaviness will be gone and will not appear again. If you do not succeed by this means then put on a hot water bag just as hot as you can bear over the stomach. It is simply wonderful how that hot bag will relieve the heavy feeling of the stomach. Perhaps you have such a bad case that you have distress at your stomach and vomiting after eating and a great deal of distress. There is something that will almost certainly relieve that and that is simply a towel wrung out of cold water and put over the stomach, covered with flannel and then a hot bag outside of that. The most obstinate cases of vomiting after eating are almost certain to be relieved by that simple measure. This was discovered by Dr. Benedict, the celebrated physician of Vienna about fifteen years ago and we have used it here in this institution in thousands of cases and it has afforded more relief than any other one simple thing I know of. We call that the hot and heating compress or the combination compress because it is a cold towel combined with a hot bag so you see you must eat anyhow all the calories the doctor tells you you must eat. Eat 2100 calories and make the doctor responsible for you to take care of them.

Q--What is the best remedy for a foul breath coming from the stomach?

A--A foul breath does not come from the stomach. It comes from the colon. The reason why you have that foul breath is not because you have got anything rotten in your stomach but there is something rotten in your colon and these foul things produced in the colon, these bowel gases formed, these stinchers that are formed down there by the putrefying process in the colon through the action and growth and development of bedrock germs that are living down there, these horrible dead rot smells that are absorbed into your blood are excreted through your lungs. Now you know if you eat onions for breakfast, in the afternoon somebody will, perhaps, smell it in your breath. You know if you eat onions the breath will smell of onions. I remember more than thirty years ago, nearly forty years ago now, a dentist said to me, "When a patient comes to me to have his teeth fixed I always know whether he is constipated or not. I can always tell by the breath. It has a fecal odor". A mother always knows whether a

baby's bowels are in bad condition or not by the baby's breath. These horrible stinchers found in the colon are excreted into the blood and excreted through the blood into the lungs. The principal cause of bad breath is a dirty colon, filth in the colon, putrefaction. Sometimes the trouble is due to the fact that the dining room door is left open. There is an overflow out of the sewer into the kitchen and from the kitchen up into the dining room. You see the alimentary canal is divided into three parts. There is the front part, the middle part and the hind part, if you please. There is the kitchen, the dining room and the sewer. Now there is a door between the stomach and the small intestine. The small intestine is the dining room, if you please. That is where the food is absorbed. We take it into the stomach and that is where it is introduced, then it goes down into the small intestine here and that is the dining room where we take the food in or rather the stomach should be called the dining room and the small intestine is the kitchen where the food is digested and absorbed, appropriated and utilized and the colon is a sewer where the waste is thrown out. There is a door placed between the stomach and the small intestine. There is another door at the other end of the small intestine that separates it from the colon, that is the back door. So you see there is a trap or a door between the kitchen and the sewer where the waste ~~xxxx~~ comes back. Suppose the garbage box or the sewer broke lose and the filth gets back into the kitchen and the first thing you know it gets over into the dining room. That is just the situation with the body when the ileocecal valve gets left open and we find cases of this sort every day. I was operating yesterday and found a case in which that valve was wide open so the filth of the colon was passing right back into the small intestine and many people that are sick and nauseated have liver trouble and all sorts of troubles because of this incompetency of the ileocecal valve. The fecal matters, the putrefying materials of the colon passing back into the small intestine. We have had cases in our X-ray department where our Roentgenologist has actually seen material pass clear up to the stomach from the colon, pass from the colon to the small intestine and all the way up through the

twenty feet of small intestine up to the stomach. We have actually seen that thing occur, so we know it does happen. I found a case yesterday when operating in which that very thing had happened. Fortunately we have discovered a method by which we can repair that kind of trouble. We can fix the door when it gets off the hinges and repair the damage. Such a person should take extraordinary care. It is not every case of that kind that needs operation. We had to operate for something else in this case. Had to remove a tumor and always examine the ileocecal valve and if we find it out of order we repair it but we do not operate expressly for that because correction of the diet will answer the purpose if we keep the alimentary canal clean and keep the colon clean and keep the movement going upward and downward and out of the body instead of caking up and then there isn't any trouble even if the door is open.

Q--If salt is not essential for wild deer why do they travel many miles to find salt beds and what has been called"deer licks?"

A--Now I have not said that these salt beds and deer licks were not useful for the deer. I think it might possibly temporarily do them good to visit the salt licks occasionally. But this, my friends, is the thing I want to call your attention to. A deer or a wild buffalo does not travel hundreds of miles three times a day to get to a salt lake, don't you see. There are only certain seasons of the year that the deer or the buffalo or the antelope make these excursions to the salt lake, just as a lot of people go down to the French?Lake springs and to Hot Springs, to Mt. Clemens and other places where they get salt water once or twice a year. The deer get to suffering from parasites or intestinal worms. There bowels get very inactive and they seek this salt water for the laxative effects of the water. It is a sort of health resort for the deer, don't you see. They have got mineral springs just as people have. They do not have to get salt if they are given proper food. I have nine or ten deer out at my house, all born on the premises and they have never eaten salt and their fathers and mothers did not eat any salt either. I have had several generations. I

have been keeping deer now for over twenty years and these deer are descended from the original pair and they are all descended from the original pair of deer that I had, that I got twenty years ago and they have never from the time I got those deer I have never given them a particle of salt, so you see salt is not necessary for deer. You can take a look at them and see that they are sound healthy looking deer. They not only do not have salt but they won't take it. You can't make them eat it, they don't want any salt.

Q--Would you recommend osteopathic treatment in some cases?

A--Now what do you mean by osteopathic treatment? I got a letter from an osteopath the other day and he said osteopathy is bound to become recognized as the one true method of healing disease. It is something out of place that is the cause of all cases of disease. "Of course", he said, "we have got beyond the original idea that everything is due to a displaced bone." He said, "Of course we do not believe that any more". Sometimes it is your muscle that is out of place, sometimes it is a nerve that is out of place, sometimes a man's habits are out of place, dislocated habits, wrong ideas about diet, don't you see. Well the Osteopaths are broadening out somewhat we see and we think the broad idea of osteopathy, that this diciple of Dr. Still seems to entertain we should say, we don't need to practice anything else but osteopathy. If most sick people correct their wrong habits they will get well if they don't do anything else. The important thing, my friends, is to learn how to live then keep at it. The reason why some of you have to come back when you go away is because you backslide. You go home and fall into temptation and you get back to the flesh pot of Egypt and you have to suffer the diseases of the Egyptians in consequence, don't you know.

Q--What are the physiologic effects of a high altitude?

A--In a high altitude it has been noticed that the heart is very likely to be over worked. People who go up into a high altitude have shortness of breath because of the work required of the heart and lungs which is very much increased. The air does not contain as much oxygen as at a lower altitude so the lungs have to expand more and the heart has extra work to do. The high altitude also seems to have a certain effect upon the nervous system. There

seems to be no doubt about that. It has been supposed this may be due to the presence of radium in the air and this is very stimulating and the air of high altitudes is stimulating on account of the presence of a larger amount of radium in mountain air than in the air lower down. I believe, however, the most of the ill effects of a high altitude can be counteracted very easily by regulation of ones habits of life and by some very simple means. For instance, a person going into a high altitude should not take violent exercise at first. He should give himself a chance to accommodate himself to altitude and if he finds he cannot keep well he may take a neutral bath. The stimulating effect of the high altitude can be overcome by a long neutral bath at bedtime. That kind of a bath at a temperature of 92 to 95 degrees is one of the finest things I know of. 96 degrees is just a little too warm. 92 to 95 degrees is about the right temperature. 91 degrees would be a little too cool. The bath may be taken for half an hour an hour or two hours but after awhile you will go to sleep and if you fall asleep in the bath it is all the better. A man can sleep twice as fast in a neutral as he can in bed, sleep twice in the bathtub as you can in bed, don't forget that. That is a real fact. I have demonstrated that many times when I have gone home about two or three o'clock in the morning and had only two or three hours to sleep, had to get up early the next morning and a lot of hard work to do and I know I have only two or three hours to sleep, I always go to sleep in a bath tub. Just get into a bath tub and in a few minutes I am sound to sleep and I wake up after two or three hours feeling as refreshed as though I had had a whole night's sleep. It is wonderful what the bath tub sleep will do for you. I see some of you smile as though you feel almost incredulous about that. I have had some emergency sometimes to keep me out until nearly morning and many a time I have resorted to this bath and I have been practicing that thing for more than forty years and have proven it a great many times. I will tell you what gave me the idea of doing that. I read the account in an old water cure book many years ago of an old judge in Jamaca that used to go on a spree every night and he had up on the roof of his house a bath tub

arranged and he had that bath-tub all arranged before hand before he went off on his spree. He had the water in it and he would come home frisky and with just enough sense to get into that tub and the next morning he would wake up as bright and fresh as a daisy and go on the bench as though he had never been on a spree at all. So he went on a spree every night of his life and freshened himself up with a long neutral bath, sleeping in the bath tub, but he had one or two misfortunes. One time a rogue let the water out of his bath so he got rheumatism. On another occasion he went down with his servant to the edge of a pool when he was off in the country when he didn't have a bath tub and he went to sleep in the water of the pool but his servant fell asleep also and the judge rolled under the water and nearly drowned so he abandoned his practice of sleeping in water on that account. He got rheumatism from his exposure and got a little frightened about it, but I said, "Now then if a bath will do that much for a man who has gone on a whisky spree, it ought to be good for a man who has gone on a work spree,"--that is worked too long or too hard. I tried it and to my great delight I found it really the best remedy for too much work or a short sleep that you can possibly find so the neutral bath, not a hot bath or a cold bath but a neutral bath is one of the best things in the world. It will almost take the place of a long night's sleep. I don't believe it is to be recommended as a complete substitute for sleep but I must say you can sleep twice as fast in a bath tub as in bed.

Q--What is colitis?

A--It is simply an infected condition of the colon or catarrh of the colon. Catarrh of the nose, nasal catarrh is an infected state of the nose and there are various germs that produce this infection. We may have catarrh of the mouth, we may have catarrh of the stomach in which patients may vomit quantities of mucous and catarrh of the gall bladder and small intestine and the colon and when it is in the colon it is called colitis. In the lower part of the colon, in the rectum it is called practitis. We may have catarrh of the skin, then it is eczema, simply an infected condition. There are several different germs that will

produce this infection.

Q--About how long does it take the average case of autointoxication to become cured?

A--Alas! my friends, I am obliged to tell you that cases of autointoxication are never cured, never cured. When you have once got infected with these awful germs that produce autointoxication, you have simply got to fight them till your dying day. Now let me ask you another question. How long does it take to kill all the cockroaches out of a house? How long does it take to get all the ants out of a house? Did you every try it, now to get out the last cockroach and the last ant out of the house? Have you ever tried that? The only way in the world to do is toshut the house up absolutely and fumigate with cyanide of potash. If you do that you can kill every living thing there, but you have got to move out of the house during that time yourself. You have to ventilate it very well before you go back in. This house we live in we cannot move out of. When we once move out we cannot move back again so we have got to do the best we can to kill off these vermin that have taken possession of us while we are still occupying the house and the best we can do with cockroaches is to sprinkle some coakroach powder here and there, don't you know hoping it will kill off the most of them. It never kills them all off, there are a few there and if you stop sprinkling the cockroach powder around very soon the cockroaches are swarming all over again. You have got to keep up the fight forever. That is exactly what it is with intestinal autointoxication. It is simply the wild putrefactive bacteria have gotten into your body and they have taken possession of you. They have just got into every little niche and corner, every little fold in the membrane tuck of a gland. They are buried down beneath the cells of the mucous membrane. You are thoroughly saturated with these germs and all in the world you can ever do is to keep them down. No you can do something more than that for Dr. Cannon has recently made the interesting discovery that it is possible to reform these germs and they will stay reformed just as long as you stay reformed. If you change your diet to a diet that contains a great deal of starch, cut out the meats and eggs entirely and do not eat but very little

milk, adopt a carbohydrate diet and a looseing diet so that the bowels move three times a day and utilize the portion of fresh vegetables and fresh fruits then these germs that make poisons will stop making poisons and will make friendly and protective acids instead, harmless acids and will work in your behalf instead of working against you. So it is possible though you are not cured of autointoxication, it is possible for you to reform these germs so they will cease to become the agents of death and will instead aid you in prolonging your life. That is what a cure consists in, reforming your habits and keeping reformed. If you do that, every case is curable, every single case of that sort is curable, but you can never be cured in the sense that you can go back to your old ways of living again and be well.

Q--Which way will an egg be most beneficial, boiled for just eight minutes or nine and one-half?

A--Either way you like it. If the egg is soft you swallow it half chewed. If it is hard you take pains to chew it thoroughly. It is just as digestible in that way as the other. The whole thing is in the chewing.

Q--Is the so-called natural or unrefined salt less harmful than fine salt?

A--No not at all. I don't believe it is harmful to eat a little salt but accustome yourself to the use of less and less and less. You will be surprised to see how little salt will answer the purpose perfectly well. Train yourself to use less and less salt. The less the better. People suffering from hardening of the arteries, people who have skin trouble, people who have Bright's disease, people who have obesity, such people ought to discard the use of salt almost entirely, the less salt the better certainly.

Q--What food did old Parr eat?

A--Black bread and buttermilk and potatoes. I happen to have a history of his diet and that is what he lived on, black bread, coarse rye bread, buttermilk and potatoes; that was the diet of old Parr, who lived to be 152 years and nine months old. There is a stone bearing his name in one of the iles of West Minister Abby and there you will find his name engraven on that stone, "Here lies old Parr." He died at the age of 152 years and nine months. Simple life prolonged

his life and he was examined by William Harvey after his death, not John Harvey the man who discovered the circulation of the blood but William Harvey who was a celebrated physician at that time. He made a careful examination of his body and there was not a hard artery in his body. Just think of that. What did he die of then? He died of a big dinner. He went up to see the king. The king invited him to come to see him, feasted him for a few weeks then he had a terrible fit of indigestion that carried him off.

Q--Can a man be so under the influence of autointoxication or in a stuper that he would mount his bicycle, ride a square then fall off and be unconscious for two days?

A--Yes. That very thing happened to a man in this town two weeks ago. He ate a very big dinner, his bowels were out of order and he was riding on a bicycle. He pitched off the bicycle and was brought up to our ward here and we found his intestine was simply loaded with decomposing undigested material. It took a long time to get the material cleared out but our nurses finally brought him to recovery. We had to pour a whole lot of water into his mouth, bowels and under his skin and in every way to get his body washed out.

Q--Kneippe recommends the use of natural herbs in connection with the use of water?

A--The poisons contained in these natural herbs are no different from the poisons found in drugs. Drugs you get in any drug store are most of them herbs gathered in some countries somewhere. It is better to take them in a known form than in an unknown form. Get the herbs in the woods and you do not know just what they contain, but if you get them from the druggist you are quite sure they are reliable, so there is no advantage in so-called "herb remedies" for all vegetable remedies are herbs.

Q--Why are raw eggs considered to be especially good diet for tuberculosis patients?

A--That is quite a mistake. The best diet for tubercular patients is potatoes, fruits, bread and cereals and plenty of fresh vegetables. Doctors are finding this out more and more. I have had considerable correspondence with doctors who have been experiementing on the low-protein diet and the find patients do better

and the temperature comes down quicker and they gain flesh more rapidly, their appetite improves quicker, they get rid of autointoxication and are much better generally.

Q--What causes one's head to feel light every time one tries to use Malt Honey?

A--There is something wrong about that I am sure. Malt Honey is an absolutely harmless thing. I can't imagine what relation there should be between light headedness and Malt Honey. If you ferment the Malt Honey, make beer out of it you can easily get light headedness. It is simply Malt Sugar in solution. There is nothing medicinal about it to produce any such effects. It is simply food already digested or bread predigested.

continued

Q--Will bad effects come from the use of Colax?

A--Absolutely impossible more than from the use of any other food. Colax is simply roughage or food in a pure state.

Q--Is a dry diet best for slow digestion?

A--That depends upon what is the cause of the slow digestion. If you mean slow emptying of the stomach, it may not be best to take a dry diet because the slow emptying of the stomach may be due to a spasm of the pylorus. In such a case a soft diet is best, not a liquid diet but a soft diet, purees and mushes. If the stomach is prolapsed and very greatly dilated, then a dry diet might be best because it would be a less bulky.

Q--Is butter bad in cases of slow digestion?

A--If a person doesn't have enough hydrochloric acid he ought to take very little fat because the fat hinders the production of hydrochloric acid, but if you have no hydrochloric acid at all, then it is another question. If you haven't any hydrochloric acid then there is no use to try to cultivate it because you have lost your power to make hydrochloric and you must get along without it and a moderate amount of fats should be taken in any case for we need fats.

Q--Is a combination of cane sugar and milk as used in coffee and cereals harmful?

A--It depends upon how much you take. A large amount of cane sugar is always injurious because it is irritating to the stomach and slowly digested. Malt Sugar is a natural sugar. Cane sugar is not a natural sugar. Cane sugar is

derived from grasses from the sugar cane, from the sap of trees, from the roots of coarse vegetables. It is not a natural sugar but malt sugar is a natural sugar. It is a sugar that is formed in the body by the digestion of starch. When the saliva acts upon starch it converts into Malt Sugar, so this kind of sugar is normal and natural to the body and can be eaten freely as a cereal. One of the most wholesome and digestible of all foods you can possibly take is a saucer of Malt Sugar. A saucerful of Malt Sugar with cream on it, is a perfectly wholesome article of food and a very excellent means of gaining fat. It is simply food already partly digested.)

Q--Is it a good habit for one with poor circulation or good circulation to flex the knees quite high when sleeping on the side?

A--Yes that is a very good practice.

Q--What is the cause of bile backing up into the stomach?

A--The pylorus does not close.

Q--What would you think if one of your patients, who because he is hungry at a late hour should go to a restaurant near the grounds and there eat a hamberger sandwich?

A--Well I should say that patient was still undegenerate. Total depravity was still speaking to him.

Q--Where can the Japanese Gelatine be bought?

A--It can be bought at the large drug stores of the large cities. All drug stores do not hand it but Colax is Japanese Gelatine. Agar-agar is another name for it and another trade name is Ceylon moss.

Q--Do you consider raw onions good on the antitoxic dietary?

A--I think if I were a germ and saw a raw onion coming I would scatter quick. Still, nevertheless, it must be said that raw onions are not antitoxic. They are only useful to give a little variety and a little flavor that some people like. They are really not much to be recommended especially raw onions. Cooked onions are wholesome but not the best food.

Q--Do you approve of gum chewing?

A--Certainly I do not. There is no advantage in the chewing of gum and there are

many disadvantages. Sometime ago I set a young man at work chewing gum over in our laboratory and had him chew gum all day and every hour a portion of the salive was taken from his mouth and tested to see what was the effect of the chewing of gum upon the saliva and it was found the saliva steadily depreciated. After he had been chewing gum five hours his saliva had no effect at all upon starch, so if you have been chewing gum and come to dinner with the salivary glands all tired out, you cannot digest the starch. The salive is scarcely of more use than water. Gum chewing is a harmful practice.

Q--How long should it take to recover from ordinary autointoxication?

A--The rest of your life. That is the truth about it. You may not be discouraged on that account, however, because it is simply to return to natural living to stop doing the things you never ought to have done anyhow. You are not asked to work with supererogation. to relieve yourself of autointoxication, but you are asked to turn away from your evil ways, return to natural living, live naturally and the autointoxication will take care of itself.

Q--Is there any danger of the so-called laxative diet together with Colax and Bran producing irritation of the bowels and too much looseness?

A--Absolutely impossible. The best remedy we have for looseness of the bowels is Colax and Para-lax. We have the best remedies we have found for looseness of the bowels. When a patient has looseness of the bowels, in 99 cases out of a hundred it is because there is an accumulation of fecal matter in some part of the colon which produces irritation and causes a loose discharge but never a complete emptying of the bowels. Colax and Para-lax completely empties the colon and thus this looseness ceases. It is simply an effort of nature to get rid of the irritating material.

Q--At the age of 17 a young lady's hair began to turn white. At 28 one third of the hair has turned white. Is there any remedy and what is the cause. She has already tried all the treatments she has heard of?

A--Well probably not. There may be in this case a hereditary peculiarity. It

is quite possible the hair cells which make pigment for the hair have degenerated and been lost and cannot be reproduced. In some cases, however, the application of the actinic rays of the sun or of the Quartz light will by sun burning the scalp cause a return of the color. I might mention also another fact that observations recently made by Dr. Ross of London seemed to indicate that the use of foods containing potash might help to restore the color of the hair. The Doctor reports cases in which increasing the amount of potash in the food has had the effect to cause the color of the hair to return,--that is to recover its natural color and bald heads to be covered with luxuriant graft of hair again. In order to get the proper amount of potash one would be obliged to eat two pounds of potatoes a day.

Q--What causes inflammation of the sciatic nerve?

A--It may be a cold, it may be a bruise or pressure of some sort but it is more likely to be poisons absorbed from the colon. Sometimes prolapse of the colon and a straining of the sensitive nerves is the cause.

Q--Does Colax, taken dry, disturb or irritate a sensitive stomach?

A--No not to the slightest degree. When it is swallowed it very soon becomes softened by the absorption of moisture and has a poultice effect rather than an irritating effect.

Q--In the use of Colax the bowels move two or three times a day but the stomach seems to be disturbed and there is headache, what is the trouble?

A--I couldn't tell. Come to see me and I will have a talk with you and find out.

Q--What is Sargol?

A--It is the name of a patent medicine, but is is very vigorously condemned by the American Medical Association and I think it has nothing that can be recommended.

Q--According to Pawlow's experiments on dogs, showing the selectivity of foods, is a variety of food in moderation indicated?

A--Yes, but one should not take too large a variety of foods. Pawlow found that meat required an active gastric juice to digest it and bread required juice containing a large amount of pepsin but not much acid. He found

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that milk required the smallest amount of acid of any of these foods. So that you can readily see that by combining together a great variety of foods we may produce indigestion because the digestive fluid will not be adapted to the digestion of all these different foods and in the effort to make a compromise will make gastric juice unsuited to any of the food substances which are present. So simplicity in diet is a very wholesome rule.

Q--Please explain the cause of excessive prespiration.

A--It may be excessive exercise, ti may be mental excitement, it may be a relaxed contion of the skin. The vasomotor nerves are in such a state that they allow the vessels of the skin to relax so there is too much blood in the vicinity of the sweat glands, sometimes due to overheating of the body.

Q--A woman has bathed her face in cold cream for ten years without using a drop of water. Is this a good practice?

A--Now I don't suppose it would have any particular influence upon the health because the face is such a small area and further it must be said that the skin can be cleaned with oil as well as with water. The skin secretion is naturally oily and by the application of oil to the skin, the skin may be made just as clean as by the application of water.

Q--Is uncooked or raw sauerkraut wholesome for a diseased stomach?

A--Now that just depends upon what kind of stomach you have got. Sauerkraut is not such a bad thing after all if it is fresh and in a wholesome condition. Sometimes it is allowed to get mouldy or most rotten and to get a rank foul odor, then it is unfit to eat, of course, but raw cabbabe is a very wholesome article. I wish we could get people to use more of it. It is a most excellent article. We have not given enough attention to cabbage. There has recently been introduced into this country a new cabbage called the Chinese cabbage which I am glad to call your attention to because it is a great improvement over all American cabbage. The texture of the leaves is as fine as that of the very finest lettuce. It has a flavor half way between cabbage and lettuce. It grows in long heads, rather slander heads and is an exceedingly fine article and we are going to have a good supply pretty soon. We have got 400 [illegible] plants

growing now down in our greenhouses. We have made some experiments with them this year. They have been recently introduced by the United States Government and I would advise you to go in for a Chinese cabbage. Plant the Chinese variety and you will find it a very great improvement. It will be a good thing to eat some Chinese cabbage or something like it at every meal. Lettuce should be eaten freely. We should eat some raw stuff at every meal. A much larger amount of roughage than we have been accustomed to eat.

Q--Does one disease bring on another?

A--There is no doubt about that. Disease produces a vicious circle. When one has for instance, indigestion it leads to bad blood and bad blood leads to weak and feeble nerve centers and to poor digestive glands and a poor quality of gastric juice and bad gastric juice makes worse digestion, that makes worse blood and worse blood makes worse digestion and the worse digestion makes worse blood and so the thing goes on getting worse all the while. It makes a vicious circle, don't you see so with disease generally.

Q--What should be done in cases of incessant belching?

A--The thing to do in cases of incessant belching is to simply stop. If you have incessant belching it is because you are a wind sucker, a cribber, a stump sucker as they say our West. When a horse gets hold of a stump with its teeth bits it hard and you hear a roaring sound it is not gas coming out of the stomach but air going down, so when you see a man going around belching all the time he is swallowing air. You just whisper to him, "you are a stump sucker" and see if he wont stop. Now it is a most difficult thing . I am talking very frankly and rudely and plainly about this thing because I don't want you to forget it. We had a little faculty meeting the other day and we were discussing various questions and this question of flatulence came up and three or four doctors spoke of it at once and said, "the one thing necessary to do for flatulence or belching is to tell the patients to quit it for every one of them are wind swallowers, they are all wind suckers, simply swallowing air." Now we are convinced of it and we have proven it. If you are troubled by that thing, go down to the X-ray department and have the doctor look at you while you are

raising air from the stomach and the doctor will see your stomach swell up like a baloon when you are raising gas. When you think you are raising such quantitites of gas out of your stomach the doctor will see that you are just sucking down air. Of course when a person swallows air after a little while it comes rushing up again. I remember my first bad case of this that I had some thirty-six or seven years ago this winter. It was an old school teacher from Canada and he was a terrible belcher. In fact, tha patient said there was a test in the Bible that referred to him. "The voice of Mikie roaring in the night". This man roared so nobody could sleep on the floor where he was and it was a very difficult case to manage. I found trouble was, he was so bundled up. He was enormously ~~muscle~~ overheated. When he came into my office I thought he was a very large man though he seemed to be rather short. When I got to examining him, I found a very peculiar situation. In the first place he took off his coat, under that was a thick waist coat, then a thick knit jacket, under that a woolen sheet folded and wrapped around him and underneath that was a woolen shirt and underneath the woolen shirt was a sheep skin with the wool on and the wool next to his body. This man had come over from Canada and he imagined it was cold in ~~this~~ Michigan and he must dress up so as to keep warm. He wore this material day and night. I sent a young man to look after him and told him to see if he could not gradually filch some of this man's clothing away from him. He went so far as to steal some of his clothes and finally nipped off a piece of his sheet, one fold at a time until he got rid of it entirely and I remember with what glee that young man came to my office one morning and he said, "Doctor I have got his pelt off at last." This poor fellow was a terrible wind sucker and we had a tremendous time to cure him of it. He would not believe a word of it. The remedy is very simple and that is when you feel disposed to raise gas from the stomach, simply open the mouth wide open and you cannot ~~not~~ force gas down without biting something. You have to force your teeth upon something in order to do it, then take five or six real deep breaths as deep as you possibly can and that sensation which is present there and which causes the reflex action that pulls the gas down into your stomach will disappear and the whole thing will pass off so it is a very simple thing. Taking

a few sips of hot water helps about it.

Q—Somebody wants some sample meals composed of the fewest possible dishes that will meet the requirements of nutrution.

A—Call for Miss Sell or Miss Hunt or Mrs. Hoyt in the dining room or just simply ask the dining room matron to send you a dietitian and she will send you a very pleasant intelligent young woman who will make out a bill of fare ~~that~~ for you that will meet your exact needs. Now I want to call your attention to one thing. These dietitians of ours are not ordinary cooks and they are not ordinary nurses, they are all specially trained people. They have had long training in chemistry and work in the laboratories across the road. They have analyzed foods. You can bring one of those dietitians a package of food from a grocery store of any sort you like and she can take it and analyze it and tell you everything that is in it and if there is any adulteration in it she can tell you all about it. They are people who have had a very very thorough training. There are very few physicians in the world that have had such training, very few physicians in the entire world that have had such a training as these dietitians have had. They are very wise women and you can trust them and you ought everyone of you to profit by the assistance that can be given you by our dietitians. Don't forget to mark your bills of fare. You ought to know everyone of you whether you are getting your money's worth. If you were going to a store and buy a lot of goods you would count it up to see if you were getting your money's worth. You are entitled to so many calories every day and you ought to know if you are getting them, don't you see. I met a poor woman who wondered why she didn't gain in flesh. She says, I need to gain 30 pounds and I have only gained three. I said, "Let me see your bill of fare. How many calories do you eat". "Why I don't know how many I eat." "Don't you count your calories." "I don't. I just eat what I think best to eat". I made her mark a bill of fare showing what she was eating and she was eating only 1200 calories a day and she needed 2500. She was only getting half her money's worth, you see. Now you better count your calories and be sure you are getting what you are paying for. I wish we could get everybody in this house to marking their bills of fare to reckoning up at

every meal to see how much they are eating. On the other hand, you are eating perhaps twice as much as you ought to eat. (I remember a lawyer from Tennessee who had been here six weeks and gained nothing at all and his headaches were just as bad as when he came and he hadn't gained a pound. He had a very important case on hand and he wanted to get a little more fat and to get rid of his headaches, to get energy and strength to carry him through his hard case. It was a very complicated case. That lawyer said to me, "What shall I do. I have been here six weeks and I am no better at all. My headaches are just as bad and I have not gained a pound." I said,"Show me your bill of fare. What did you eat to day." He marked it to show me just what he had eaten during the entire day, and you know I found he had eaten 1500 calories of protein. Think of that!and he had eaten over 2000 calories of fat. Just think of that! and he had eaten really ~~kicks~~ something like 4500 calories during the day. He had eaten twice as much as he needed toeat and five times as much protein as he had ought to have eaten and twice as much fat, more than twice as much fat as he should have eaten, yet he was growing thinner all the time. He was eating himself poor, don't you see. His body had to work so hard to get rid of all that surplus food it just kept him poor. I cut off half his rations, put him on a balance bill of fare and he began to gain right off and in six weeks more he went home weighing 20 pounds more, his headaches all gone and he was very happy.

Q--What causes high blood pressure?

A--Several things. Tobacco is one thing. One cigar will raise the blood pressure twenty points in thirty minutes. Dr. Jeanway (?) of New York has proven that by experiment. Tea and coffee make high blood pressure. Do you know that when a doctor has a patient he ~~thinks~~ is afraid he is going to die of shock and his pressure is getting lower and lower and lower, do you know what the doctor gives?

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Question Box Lecture, February 24, 1913 continued

Tea and coffee make high blood pressure. When a doctor has a patient he is afraid is going to die of shock because his blood pressure is getting lower and lower and lower all the time, do you know what the doctor gives that patient when he doesn't do anything else. He will always give that patient a dose of caffein. Why, because caffine raises the blood pressure quicker and more certainly than any other medicine that is knows. How much caffine? Two to four grains of caffine is what is necessary to raise a man's blood pressure when he has hot shock after a surgical operation and is going down and the doctor is afraid he is going die. How much caffine do you think there is in a cup of coffee, how much? Four grains according to Dr. Wiley. That is a big dose, so if you see if you have got high blood pressure how very easy it is to make it higher. I saw a patient this very evening, examined his blood pressure and looked at him record. He came in three days ago, His blood pressure was 138.three days ago. I took his blood pressure tonight and it was 100. It had come down 38 points in three days. He was a young man and had no business to have high blood pressure, a blood pressure as high as 138. He was less than 40 years of age. What is the reason. He had been in the habit of taking two strong cups of coffee every morning and that was keeping his blood pressure right up there and if he had gone on his arteries would have got hard, then his blood pressure would have been higher all the time. Constipation is a great cause of high blood pressure, Beef tea, beef steak, meats of all kinds cause high blood pressure because they all contain uric acid. Uric acid and caffein act just the same in raising high blood pressure. A pound of beef steak has 14 grains of uric acid in it. A pound of sweet breads have 70 grains of uric acid in it, the equivalent you see of almost 18 cups of coffee in one pound of sweet bread and in a pound of beef steak it is equal to three cups of coffee. Here is a man who sits down at the table and eats a whole pound of beef steak and takes two cups of coffee. See what he is doing. He is taking 8 grains of caffein in his coffee and 14 grains in his beef steak, more than 20 grains of caffein, five big medicinal doses of caffine he has taken for his breakfast and

is it any wonder his blood pressure is up high. The wonder is, my friends, that we have so few people who have high blood pressure when we consider the habits of the people which are, in so many respects, condusive to the raising of blood pressure.

Q—Do you believe we receive direct answers to prayer in behalf of those who are sick?

A—Now that is a theological question. I will tell you frankly I don't believe anybody's praying will change the purposes of the All Mighty one I don't believe God ever did anything just to please a man no matter how much he prayed. I believe the only thing that can possibly help a man in prayer is by changing the man and bringing the man, perhaps, into harmony with a divine will in some say and it may be of service to him in that way. Nevertheless I want to say to you, my friends, I never do a surgical operation without earnestly asking God to help me. I never would think of doing it because I feel the need of help and the sort I hope to get is not that God is going to do any supernatural thing but that he will put into my mind the right sort at the right moment and help me to do my very level best for that man I am trying to help. I think prayer is a very practical thing, the real mind cure.

Q—Is there any way to strengthen eyes?

A--Yes. Go and see an occulist and have him make an addition to them with glasses. I am beginning to get a little old and I have to wear glasses. The eye is an optical instrument and sometimes needs optical help.

Q--Is natural glycerine ever given as a medicine?

A--Yes indeed, very often to lower blood pressure and it does a great deal of damage. We don't find use for it here because it lowers blood pressure by weakening the heart. We don't want to lower blood pressure by weakening but by removing the cause of the high pressure for the blood pressure is never any higher than it really needs to be.

Q--What should be done in cases where acids are thrown up from the stomach into the mouth?

A--The best thing in such a case is not to eat acids but to eat food that is not

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acid. Avoid irritating the stomach. The reason the food is brought up into the mouth in such a case is because the acid [redacted] shuts the pylorus up, contracts the stomach and forces the material up instead of down. The food should be less acid. I think I have got to the bottom of the box. I thank you for your attention.

The end of this lecture.

v-p

March 3, 1913.

Digestion.

Stereopticon Lecture at the Sanitarium Parlor, Battle Creek, Michigan, Feb'y 27, 1913 at 8 p. m.

by

J. H. Kellogg, M. D.

You have been seeing some pictures on the screen. Meat was never intended to be eaten. Animals are eaters, not eatables. I would eat pig myself before I would starve to death but I certainly would not select a pig to have a feast. Adam Clark you know, the great commentator one time was asked to ask the blessing at a table where a roast pig was the center of attraction and he said, "Oh Lord, if Thou cans't bless under the gospel what thou dids't curse under the law, bless this pig,"and he said more than that, that if he was going to make an offering to the devil, it would be a pig stuffed with tobacco. I don't know anything worse than pig unless it be oysters. Down in New York they have been discovering recently that they have a great many cases of typhoid fever that could not be easily traced. Now it is known that typhoid fever is infectious. A patient has typhoid fever and other people coming in contact with the party are likely to get infected. It only takes a very few typhoid fever germs to give a person the disease, only a very few. The amount of typhoid fever germs in a bit of the discharges of the typhoid fever patient only as big as a grain of wheat would be enough to inoculate a whole family. The typhoid fever germ grows very actively under favorable conditions. Now many cases have been observed that could not be readily traced. It has been known for a long time that this disease sometimes comes through water. That was the first discovery, then it was discovered that typhoid fever was often communicated by people who carried the germs of typhoid fever afound with them.after they got over the disease themselves and these people are called typhoid fever carriers. There was a woman down in New York who had been traveling around among various families for fifty years that had typhoid fever fifty years before and she got to be an old lady and went from one family to another and in every single family

where she went they had typhoid fever. They found this woman was a typhoid fever carrier. The typhoid fever germs had taken possession of her and never moved out. They just got into her gall bladder and they lived there and multiplied and grew in her gall bladder, so her body was kept continually infected with typhoid fever germs and wherever she went she infected everything she came in contact with. So we know there are typhoid fever carriers and more recently it has been discovered that the common fly during the Spanish American War it was discovered that the common fly is a typhoid fever carrier, but a more recent discovery which has been suspected, I might say for a long time, has shown that the oyster is a very frequent carrier of typhoid fever germs and this tells a little story about it. This was published in one of the New York papers. I think I told you about it a while ago and where you could find it. We will read the story off the screen here."How they tracked down the typhoid oysters. The most remarkable scientific detective feat ever accomplished with the United States Government in a row of Sherlock Holmes". I think that is something of an exaggeration but it is naturally a little yellow for it comes from the New York American. This picture shows Uncle Sam after the oyster you see and the oyster is shown with a skull from and other things inside and here is where they found a lot of oysters. After they gathered the oysters they put them into that cellar and let them get a drink and they got awfully infected in that way. This was a terribly infected place and here is the story. No. 1 "Here the typhoid fever germ is seen floating out into the river from one of the city sewers to be carried along with the stream into Jamaica Bay". It was found where these came from, these germs. There were a large number of sewers open into the water. No. 2 "The germ floats with the tides over the oyster beds which yield some 500,000 to 1,000,000 bushels of oysters yearly and are mainly consumed in the city of New York." No. 3 "Swept along with fragments of sewage, the germ enters one of the oysters, finds it a congenial dwelling place and is not ready to start on the second stage of its deadly journey." No4 "The germ infected

oyster is torn from its bed by the grapples of the oyster men and is carried to the surface into their boat with hundreds of others to supply the New York Markets." No. 5, "With the germ lying dormant within it, the infected oyster is placed in a cellar flooded at high tide. Here it is"fatened" by flooding and those not hitherto infected run the risk of being so." No. 6, "The oyster when it has become properly bloated by its emersion in fresh water is carried to the New York market for sale in bulk to the wholesale dealer or market men of the great city." No. 7, "The retailer goes to the wholesale market and orders from the stores as many hundreds of oysters as he needs. Among them is the infected shell fish who progress is being traced." No. 8, "The infected oyster is next carried away to the retailer's store. It is to all outward appearances healthy, the dealer having no power to determine from the shell the presence of microbes." No. 9, "Placed in the basket with others in the window of the retailer, it is bought by some house wife, who in her turn is no more able then the retailer to tell whether it is good or bad and has to take it on faith." No. 10, "Having received the house wife's orders for so many on the half shell, the retailer opens the oysters at his store. Among those opened is the one containing the typhoid fever germs." No. 11, "The infected oyster is delivered among the others ordered by the house wife. It has a scaped detection because the germ could only be discovered by a miscros-copic examination which would destroy the oyster commercially." No. 12, "The cook after washing the shells on which the oysters lie, prepares them for the table. The shell washing has not removed the danger because the germ is by now firmly inbeded in the tissues of the soft body of the oyster." No. 13, "The waitress sets the plait of half shells containing the infected bivalve on the table. Everything else may be scrupulously clean, but the dormant germ untouched by its many journeys is a spot of deatly poison." No. 14, "The unfortunate guest takes up the infected oyster on to his fork and eats it. There is no taste to betray the presence of the microbe. The food indeed cannot be told from the other oysters on the plate that may be harmless. " No. 15, "The typhoid germ which was in the oyster has found favorable conditions

within the guest who ate it, Has multiplied and the victim is shown here ill with the deatly fever, the cause of which is a mystery to him. Thus a banquet becomes a death feast." No? 16, "The germs which floated days before out from the shore on the tide has caused the death of its eater, a thing which could have been avoided if the oysters had been cooked or adequate legislation protecting the beds from sewage pollution had been provided."

At a big banquet more than 100 persons were infected with typhoid fever in this way. The oyster was the cause of the trouble. Persons who have hyperhydrochloria are not so likely to suffer from typhoid fever when they eat oysters because the hydrochloric acid in the stomach destroys the typhoid bacillus, destroys the germ. So you are lucky if you have got too much hydrochloric acid, but you are awfully unlucky if you have not got any, because then any of these germs that you swallow then pass right on through the stomach into the small intestine and there they find a very favorable place for growth.

Now we are going to talk a little while about the stomach. The stomach is a laboratory. The digestive apparatus is a succession of laboratories. The mouth, the stomach, the small intestine and the colon, the pancreas and the liver are adjacent accessory digestive organs. These digestive organs have for their purpose the conversion of food into material which makes it possible for it to be absorbed and converted into blood. This is an illustration of how we have gotten information about the stomach. Twenty-five years ago we didn't know much of anything about digestion. Dr. Beaumont away back one hundred years ago had made some study of the stomach, Alexis St. Martin, and found some very interesting things which recently have been confirmed by observations made by Cannon by means of the X-ray. Dr. Beaumont was a country doctor out in the woods and it was thought he had not made very scientific studies, but the evidence and the last observations made by Dr. Cannon at Harvard University by means of the X-ray experiments made upon dogs, cats and human beings have shown that Dr. Beaumont was a thoroughly scientific observer and the facts which he learned by the study of the stomach of Alexis St. Martin ~~learned~~ the closest scruting of modern scientific research. The most of what we really know about digestion has been

discovered by Pawlow within the last twenty years. Prof. Pawlow is a Russian. He went to Germany, studied physiology, then he went home to St. Petersburg and established a laboratory and his first study was the stomach and one of the things he did which no one else had done before was to take the stomach of a dog and divide it into two parts, one a little stomach and one a big stomach. The little stomach was about one-tenth as large as the big stomach and the little stomach he experimented on and he let the dog have the use of the big stomach so the dog was not materially disturbed by his operation and he could carry on his work just the same as before. This large stomach was completely separated from the small stomach, had its own mucous membrane, so it was entirely distinct from it and had no connection at all with the other stomach. Now when the dog takes food into his stomach the gastric juice begins to pour out and mixes with the food and at the same time, pure, unmixed gastric juice pours out into the little stomach and out through a hole in the skin into a little flask so the gastric juice could be obtained in a pure state and studied. Prof. Pawlow found that different kinds of food required different kinds of gastric juice. One of the interesting things which he found, one of the most interesting, perhaps, was the fact that as soon as one begins to feel food in the mouth the stomach begins to pour out gastric juice,--that is within four or five minutes after one begins to chew the stomach begins to pour out gastric juice, so if a person has not enough gastric juice, if a person has had a gastric analysis and it shows he has not had enough gastric juice, then it is very important that that man should do something to encourage the production of gastric juice and the thing above all others he can do, the most important thing is to chew and particularly if he chews something that has a good strong flavor in it. If he chews something that is dry and has a decided flavor in it, it will cause a very strong out flow of gastric juice, so I recommend everybody who has hypopepsia or apepsia who has not enough gastric juice, I recommend every such person to begin his breakfast with a Good Health Biscuit and some Malt Honey and why, Good Health Biscuit is crisp, brittle and requires chewing. Zweiback would answer the purpose not quite so well but will answer the purpose somewhat because it has not the same

degree of crispness and dryness and the Malt Honey here is good because Malt Honey not only stimulates the flow of gastric juice while it is in the mouth but has a decided flavor that calls forth the flow of saliva and after it gets down into the stomach it continues to stimulate the flow of gastric juice both the acid and the pepsin. This shows a drunkards stomach, an ulcerated stomach. the effect of mustard, pepper sauce and other comdiments and ginger. Here is an inflamned stomach from drinking whiskey or alcohol or from the use of mustard, pepper, pepper sauce and ginger which Dr. Beaumont saw had the very same effect upon the stomach that whiskey did. That is the way our Alexis St. Martin's stomach always looked when he came back from a spree of three or four days which he sometimes indulged in. Now in the treatment of stomach disorders, the first thing of all is to find out what is the matter with the stomach and I am going to give you a little talk not only about the stomach but about a few other things in the hope that I can encourage you to co-operate with the doctors in such a way as to get more thorough effects and more efficient and complete results from your treatment.

This is a graphic chart which shows through the middle here the normal figures and when a person takes a test meal consisting of a little bread and some water in the morning then it is taken up at the end of an hour with the stomach tube. You don't have to swallow the tube, you know, you only swallow the tip end of it and the rest of it follows down and when it gets down into the stomach then it lets the breakfast out and you get the results of an hours work of the stomach upon the food and you find what kind of gastric juice has been made. A study of it shows just what sort of gastric juice you have got whether you have got acid enough or too little or too much, whether you have pepsin enough or too little or too much. it tells also about the salivary digestion and the influence of the salivary digestion which begins in the mouth continues in the stomach for a hour or an hour and a half after the food is swallowed. Now if you have got hyper,--too much acid,--you will find this line going a way up high and if you have not got any at all you will find it a going

way down low to zero and if you have got it down to zero no hydrochloric acid or no pepsin, you may be pretty sure you have got a pretty badly worn out stomach. Then you have got to take particular care of that kind of stomach. You must never eat any beefsteak if you have got that sort of stomach. Why? because beefsteak requires strong gastric juice. There is a stomach that never ought to take a particle of beefsteak because there is no hydrochloric acid at all, absolute-none and when there is no hydrochloric acid then it is a plain case that meat cannot be digested in the stomach and it cannot be disinfected in the stomach and if a man happens to swallow an oyster with some typhoid fever germs in it such or some infected water, he is an easy victim, a very easy victim. It wouldn't take but a few typhoid fever germs to infect him, then he would develop a full fledged typhoid fever very easily. Now in order that we shall understand digestion properly we have got to know what goes on down in the intestine below the stomach as well as in the stomach itself. We have got to know what happens in the small intestine and in order to get a clear understanding of that it is necessary to take a test meal. A test meal does not show what kind of gastric juice is made in the stomach but it shows how the stomach acts upon the food and shows how the intestine acts upon the food and shows how the colon acts upon the food. So we know by giving a test meal which consists of some food with bismuth in it. This is taken in the morning at six o'clock, then at half past nine o'clock the Roentgenologist will make an observation and when the patient sits up before an X-ray tube the stomach is visible right upon the screen and if you have a looking glass in front of you, you could see your own stomach at work. You could swallow food and see it passing from the mouth into the stomach, then see it moving around in the stomach, perhaps, and slipping out through the pylorus then sailing off down through the small intestine and by and by it gets down to the colon. This shows the colon. We have not time to tell you all about that tonight. This shows various colons that have got badly tangled up because they are badly diseased. Here the colon has got stretched out, has become redundant, has formed into folds and kinks. This diagram shows how this difficulty is sometimes remedied when obstructions occur by a short circuiting

operation. The intestine is brought across, is connected here directly with the colon so that material can pass through this short course instead of passing through the long one. This wonderful intestine has an intelligence of its own. It is marvelous the way it works in manipulating the food. This is shown very well in the way the intestine behaves when a pin gets into it or some foreign body. Suppose a child swallows a stick pin for instance and you imagine it is going to get into the abdominal wall penetrate the aorta or the kidney or some other vital part and it will kill the baby right away, but it doesn't happen that way at all. The stick pin is swallowed, the bowel immediately begins to thicken up so the pin cannot get through, the intestine pushes against the pin and by and by gets it into a perpendicular position. It keeps pushing and pushing and finally pushes it over and the next thing you see that pin going down stream head foremost and all is well. That is the very thing that actually happens. Dr. Rogier of Paris made a lot of experiments upon animals by putting pins and nails into their intestines and that is the way it happens every single time. The intestine always turns the pin around and sends it down stream head foremost. Now you can see that the intestine has the power to manipulate a foreign body in this way, also has the power to ~~make~~ manipulate the food and the manipulation of the food is an exceedingly important part of the work of digestion. When food enters the stomach there is preparatory work done there that cannot be done anywhere else. Then it is passed along to the next ~~workers~~ porters below, then it is carried to the gate keeper, the pylorus, to be inspected and it inspects it and passes it on if it is right, through the gate. Then the bile begins its work and the pancreatic juice does its work and the intestinal juice does its work, all while the food is passing down through the 22 feet of small intestine and it finally reaches the colon and then there is only one thing left for the colon to do. The nutritive parts of the food have been digested and absorbed and there is only one thing left for the colon to do, to overcome the undigested materials in the shape of residue and the next was the indigestible material, the bile and all the poisons it contains and the mucous secreted and the poisons poured out, all along down the intestinal track. These are all mixed together with the

residues of food and undigested material and it all passes into the colon and now the colon has just one thing to do and that is to absorb the water from these unusable residues and waste materials, to absorb the surplus water then to discharge this waste material from the body. That is what the colon is for, but if anything fails in this operation, there is trouble and there may be failure. If material lies about there, this unusable material lies in the colon too long the very same thing happens to it that happens to waste material from the dinner table when it lies in the garbage can too long. Suppose instead of having the garbage can emptied every day, you should let it stay around your back yard six months. Suppose you simply piled it up in a corner of the kitchen somewhere, consider what would be the situation of your house. Suppose you simply shoved off all the residues of the table into the corner of the dining room and let it stay there, think what the situation would be. The dining room would be absolutely impossible, you could not eat your meals there. It would destroy your appetite. The odors from that ancient garbage can in the dining room would spoil your appetite for dinner. Now that is what is the matter with a lot of you. You have got a garbage can in your dining room. A whole lot of these waste materials 4484 is lying there in the colon rotting, souring, fermenting, decomposing, forming gases and poisons and passing into your blood and rising up into your brain makes you drowsy, stupid, sleepy, irritable, cross, savage, pesimistic, melancholy and you haven't any appetite. You have a bad taste in your mouth, a bad flavor in your breath and a kind of dead rat smell and you wonder what is the matter. The real trouble is there is something rotten. It is not so far away as Denmark either, it is just right close by in your own interior and this xxrottenness that is developing there in the colon that almost everybody is suffering from. It is anew idea to the majority of people apparently and they think it is extraordinary and something very strange that they haven't heard about it before. You ought to read the advertising columns of the newspapers and see what they are saying about it. Why, they have been talking about it for the last century. Every newspaper has advertisements in it about medicines to move the bowels. What for? Why is it there are so many carloads and train loads

of bowel moving medicines sold and swallowed every year. This could not be if it were not for this very thing because people from their own experience find that they feel better when they have a thorough house cleaning so patent medicine dealers have gotten rich making laxative pills, after dinner pills, Lady Webster pills, Pierce's Pleasant Purgative Pellets and all sorts of patent pills, rhubarb pills and soda pills, etc. These have been purveyed all over the world and there is no other medicines sold so much and so much used as medicines to move the bowels. Then there is another thing that the papers have been preaching ~~drunk~~ it to you and you didn't understand, the use of mineral waters. Think of the quantities of laxative mineral waters, appolonaris waters, hunyadi waters, seltzer water and all sorts of waters shipped all over the world. See how peeple flock by the millions and millions to Carlsdad and Mariendad, Baden-baden and the Hot Springs of Arkansas and the various mineral springs all over the United States, French Lick Springs and every sort of mineral spring where they have got some water that has got a taste of the sea and a smell of perdition in it. People are certain to go because they find that these awful waters somehow tickle the intestine in such a way as to get of a kind of housecleaning and they feel better. Now that ought to have informed us that there is something wrong down there. The first thing when a patient goes to an old fashioned doctor the very first thing the old fashioned doctor did was to give him patient an opening purge. That purge was to open the patient's bowels and to open the campaign against the disease, don't you see. Two things were opened at the same time. It was the beginning of the doctor's procedure, The beginning of his program was to move the patient's bowels because the doctor found from experience that that is what is the matter with everybody so it is no new doctorine at all, don't you see. It is simply an old fashioned idea that has been rather overlooked in recent years apparently. It has been left to the patent medicine vendors, to the mineral spring barkers, if you please to parsuade people to take the proper amount of laxative medicine until the bowels get so they won't move even with these laxatives and the average chronic patient has gotten to where he has tried every one of these things and they do not do any good at all. I

remember a man who was here from Grand Rapids some years ago who could take a pound of Epson salts and they didn't do any good. He had been taking Epson salts regularly. He began taking them once a week. His mother had the practice of getting the whole family together on Friday or Saturday evening and giving them a dose of Epson salts so as to get them ready for Sunday. She gave the whole family, big and little a dose of salts every Friday night or Saturday might so they would be ready for Sunday to enjoy and appreciate the sermon. SHe had an idea of true cleanliness didn't she, internal as well as external.

Now neglect of these very important things and allowing the colon to get into this horrible, filthy and vile condition fills the body with poisons. A lady said to me today, "Why is it I am so lame". Well there was a good reason for it. She was lame because her liver was paralyzed. You cannot make fat without a good liver. The one thing the liver has to do is to make fat for the body. It is a very important part of the function of the liver to make enzymes that will enable the body to be fat. If you have liver disease, you cannot possibly be fat. If you are fat and healthy and rosy cheeked, it is because you have got a good liver. You cannot possibly have a clean skin, a clear complexion and a plump healthy body, you cannot possibly have it without a healthy liver. This lady was lame, sallow, yellow because she had a bad liver. Yes and a worn out, tired out liver, but the liver was not to blame for it. The whole trouble was in the colon. Simply the body was flooded with these poisons so the liver had been worn out. Here is a healthy looking liver. That shows the liver aells that do this important work and this is the way they look through the miscroscope. The poisons come down through the blood xxxxxx vessels and the little cells take the poisons out and send them back through the bile duct and in that way the blood is purified and the life is maintained. Here are some livers that have become poisoned, cancerous, sclerotic, nutmeg, hobnailed livers because of the damage to which they have been subjected. Now here are some kidneys. These kidneys represent in this case a healthy kidney here, and here is the great white kidney, the result of beer drinking. This comes from other things beside. There are more diseased Kidneys produced by constipation than by whiskey

and beer together. Here is a congested kidney. Here is a sclerotic kidney. This is a kidney of a gin drinker. This shows where the kidney does its work. The poisonous secretions are poured down into this little tube which carries them down through the bladder out of the body. Here is a wonderful little structure, the supra renal capsule that lies at the top of the kidney and this makes a substance which maintains the blood pressure. It makes a substance which causes the burning up of poisons and waste matters of the body. It also has another very important work to do. It destroys the poisons absorbed by the colon. That is, these pigment poisons that are absorbed are carried to this structure and destroyed and when you have got a pigmented skin, a sallow skin, socalled liver spots, the trouble is the supra renal capsules have more work to do than they can possibly do and they have broken down with work, so the poisons have accumulated. Now ~~the~~ we were reading of this story of the liver and kidneys from Dr. Hurter? ~~Brkkkkr~~ the other day so we won't read it again tonight. You remember he told a very interesting story how the kidneys are spoiled and here is his moral. If you want to spoil the ~~body~~ liver and the kidneys, eat irritating, constipating spices and other things, but don't be cranky and eat for strength and happiness. Dr. Hurter? is secretary of the State Board of Health of Indiana. If he were talking here in the parlor he would tell you just exactly what I am telling you. He does not eat meat or oysters himself and although he is secretary of the State Board of Health of Indiana, he goes out all over the state and is not afraid to tell people to stop their meat eating. I heard him talking to an audience once ~~about~~ and a man asked him, "What do you think about ham?" And he said, "Ham is splendid mummy." Smoked ham, that is exactly what it is. The very same operation is used for smoking ham that the old Egyptians used to use to preserve their ancesters, so it isn't any wonder a good many people are ~~in~~ sick from the use of these indigestible meats. Smoked and preserved with creosote, mummified. It is just as difficult to digest such foods as it is for the human stomach to digest and it is for germs to digest. The same reason that prevents this decay prevents its prompt digestion. Now these impurities are introduced into

the blood and they have to be delt with. The heart circulates them about through the blood and the blood cells have to destroy the poisons. So the blood becomes itself damaged by contact with these poisons. Then a person gets anemia and it is very necessary to know the condition of the blood. It is of the highest importance that the blood should be examined, not only to know the blood pressure but to know the number of blood cells because the blood is the structure of the body, it is really a liquid tissue which fights for our life. It is fighting for us every minute. The red cells carry oxygen down into the various parts of the body. There are thirteen million million of these red cells, quite a number of them you see. They are little black disks and if they were all put together they would spread out over a suffface of 20,000 square feet, and, as there are two sides to each one of them, the actual surface of these red cells in the body is more than forty thousand square feet. We have forty thousand square feet of blood. Just think of it! Suppose a person is anemic and has only half as much blood as he ought to have. His blood cells are 60% and he has only 20,000 square feet in all when he ought to have 40,000. Now oxygen is caught and absorbed on these surfaces and carried to the tissues where it is wanted and if you have only got 20,000 square feet of blood surface instead of 40,000 you can only carry half as much oxygen as you ought to carry and that is the reason why you get short of breath so easy. That is why it is so hard for you to climb stairs and the reason why you feel so weak. It is of the highest importance that the blood should be kept up to high water mark, 100% of red cells and 100% of white cells, 100% of coloring matter in the blood. These are all important. Now this is one of the careful charts showing the study that is made of the blood. The sample is taken to the laboratory and experts study it and by studying the blood they are able to tell us just how we stand in relation to blood supply. This is an index to resistance. This shows how some diseased conditionsof the body arrise from a diseased state of the blood. Heart degeneration takes place when the blood becomes diseased and destrubtion of the muscles and degeneration of the muscles takes place and not only of the muscles but of the bones and of every other structure in the body. When the blood becomes diseased every structure fails. That is the very found-

ation of disease and one of the first symptoms of this diseased condition is the loss of coloring matter in the hair. That is not the only cause but it is one of the early symptoms. That is why the hair gets white in old age. It is because the blood has been deteriorated. These cells are invading the hair and carrying off the pigment matter.

Now by a study of the food residues of the body by a study of the stools we can find out what kind of germs are working in the alimentary canal and we find that we have there healthy germs and unhealthy germs. There are germs that protect us against disease and germs that cause disease. It is important for us to encourage the health making germs and to discourage the disease producing germs and that can be done by regulating the diet, and, if necessary by using special ferments, Yogurt Tablets and other things of that sort by means of which the flora of the intestine can be controlled. Now just a few words more about the muscles particularly. It is important to know what kind of muscles we have got. When you come here to the Sanitarium, one of the examinations made here that is not made elsewhere is a thorough testing of the muscles. By testing each group of muscles in the body and adding together the combined strength of all the different groups we can get the total strength. The health of these muscles is of the highest importance. When the muscles of the back are weak one gets round shouldered, the waist is weak, the breathing capacity is lessened. See what splendid strudture these muscles are. When the muscles of the upper body are weak the head drops forward and the shoulders round. When these muscles are tense and strong the head is held in a proper position, the chest is expanded, the lungs and the heart can work properly and the whole body can be maintained in a normal state. This shows the abdominal muscles. The whole abdominal wall is made up of tense muscles and the effectiveness of the breathing depends very largely upon the integrity of these abdominal muscles. If you have weak abdominal muscles you have weak breathing. If you have weak trunk muscles the breathing is necessarily weak and you are a weak person. Then the liver and kidneys become displaced. These are some of the wonderful muscles of the face. The reason why you are down in the mouth is because these muscles are pulling

so hard upon the corners you see. Here are some other little muscles that pull the corners of the mouth up. Here is a very curious little muscle right here. This is the muscle that is connected with the corner of the mouth here and then runs up and attaches to the nose and it is called the lavator labii superioris alaeque nasi muscle. It is a very big muscle with a very big name. When one turns up his nose it is because this muscle is contracted, you see. When you see people with a scornful look upon their face, it is because that muscle has been practiced too much in that way you see and it has gotten too short for the rest of the muscles of the face. If the muscles up here that pull the corners of the mouth down and give you a down in the mouth look, if they are too strong you must set these other muscles to going, you see. Here is the muscle that pulls the corner of the mouth up toward the ear, that contracts when you smile and you must set those muscles to going for exercises and about the only thing in the world a man needs to do in this world is to keep his face straight. The face is all the time fixing itself around to match the mind. Your mental states are mirrored in the face and if one can just keep his face straight the rest of the body will take care of itself. There is quite a problem that has not been settled yet among the psycologists. That is whether a man is happy because he smiles or whether he smiles because he is happy. After you have gotten your examinations of the muscles and the blood and the heart and the lungs and the stomach and all the other examinations that can be made here and the X-ray examination, the next thing is to get your daily program and get the doctor to put down in all these blanks something you ought to be doing. You are here, my friends, to make a business of getting well. I think at least 95% of the people in this house are here in real deadly earnest about getting well and want to make the time count. We have a few people now and then sort of dilettante invalids, sort of comfortable valetudinarians traveling from one place to another and having a pretty good time being sick. It is rather hard on their friends but the average man comes here to this place where there are no factitious attractions. The average man is here to get well, to get all the good he can and we are anxious that everybody should get all the good he can, so

we have a program arranged that keeps you buay from six o'clock in the morning till nine o'clock at night and keeps you climbing right up toward health all the day long. Here is the morning bath, don't forget it. It is a little hard to get out of a nice warm bed in the morning and take a cold bath. At first you don't like it first rate but it will do you a world of good. It sets all the machinery of the body to going. It creates an appetite, it gets the heart to going, it makes the blood move through the body and begins business in an effective way. Then between six and seven o'clock there is 15 or 20 minutes for a walk out of doors which is of great value and the exercise in the gymnasium. This exercisex is not simply to exercisex your chest but to show you how to hold your chest up, to show you how to breathe, get the habit of standing erect, of holding up the chest and breathing deaply, exercising the lungs well. When you exercise your lungs well, your heart, liver, stomach and all the other organs of your body can work better. Why, all of this internal machinery is just like a clock, it is all geared together. The stomach is geared into the liver and the lungs into the stomach and liver. The liver and kidneys are geared together. All these internal wheels are all working harmonously together and if one stops they all stop. If one goes slow, they all go slow. So it is very important to attend to all of these functions that are within our personal control. The things that we can do personally, voluntarily, it is our duty to do and there isn't anything I know of myself my friends, that one can do that has so much effect upon the whole vital machinery as setting this chest, this great breathing engine to going because you can take a great big breath that will breath in one hundred cubic inches and breath out 100 cubic inches or just take a little shallow breath in which you can breath just about half a pint at a time. The majority of people are just gasping and don't know anything about it, about what real breathing is. When you are not sitting in a rocking chair or an office chair getting your chest flattened and your lungs contracted so they can hardly expand any more, get into the gymnasium and get an impulse that will keep you going all day, then morning prayers, don't forget that. It will make you feel that you are on the right side, that you having taken a stand upon the right side of doing the right

thing. My friends, there is nothing like it. It is a tonic to a man to feel that he is on the square with himself and everything else in the world, that he is recognizing the great power that made him and that helps him. It is a good thing to do that thing and a good thing to do it regularly every morning and then comes breakfast. Don't forget that because the breakfast is where you make up what you have lost during the day. Of course in the bath-room and
4492 other places you are cudgeled, spanked, belabored and punished in a great variety of ways. You suffer more or less punishment but that is the penal side of the institution, you see. This is the place where people come to expiate their sins of omission and commission. In the bath room is where we wear off and wear out and tear down that wicked ~~pick~~ old dissipated man you want to get rid of. We have to sweat him out and wear him out and rub him off to get rid of him in every way ~~we~~ possibly can. Then you go to the dining room and build the new man. That is where you get the material to make the new man. Don't forget to chew. By the way, did you like that delightful dasheen on toast you had for supper tonight? This was the first time it has been generally served and the first time it has ever been served in any institution in the United States. The United States Government had the goodness to send us a supply of this splendid vegetable. We have been growing it in our Greenhouse and this is our first cutting and we hope to have it coming along now regularly every few days. We didn't eat it all up tonight by any means. We cut over three hundred pounds very the/first cutting and we will have two or three hundred pounds every week right straight along so you can all have a taste just as often as you want it. It is better than asparagus and helps to furnish bulk. We are all in need of greens. ~~greens~~. We must study all the time to get into our dietary more of the green stuff, the bulky stuff, material that will act as a stimulus to the intestine. When we live more nearly like our nearest relative, the gorilla, the chimpanzee, and the orangoutang, when we lived more nearly like these creatures as we once did we kept nibbling ate a great deal of green stuffs all day long and kept the alimentary canal clean. That kept it is motion, in activity, but living upon a concentrated diet as we have been doing, fine flour bread and cane sugar, — If one ~~eats~~ ate the sugar cane

instead of the cane sugar there wouldn't be any trouble about the bowels, you see. The cow eats the whole thing and her bowels are all right. If you only eat the sugar and reject the cane ~~and so~~ you do not get the roughage you require. Then comes Swedish gymnastics. This is one of the most neglected departments of this institution and one of the best. If you go and get the exercises in the gymnasium just after breakfast, after that you should go into the manual Swedish department. That is the place where you can learn a lot of exercises that you can take after you go home. That is where we get these feeble muscles developed. I see the chart of every person who comes to this institution and I write a little note to every person who has a strength chart made and I call the attention of importance of developing this set of muscles or that set of muscles after looking them over to see what prescription is required and I find about one in ten persons pay some attention to their prescription. I call your attention to it especially so you wont leave it and I want to say further I do not think we have got a thing in the whole institution except the dining room and our dietetics here that is ~~are~~ of more value than these manual Swedish movements. You hear all over the country what the osteopaths are doing. We have all the good features of osteopathy there are in our manual Swedish movements. The good part of osteopathy came from the Swedes. Mr. Still, the originator of osteopathy hired some swedes to come here and teach in his school and he got some good things out of them and it is these good things that darry them along. Up here in our manual Swedish department you get the really good scientific things employed in osteopathy and chiropractic and such things without the chicanery and the quackery and the humbuggery all that ~~, and it~~ is worth while. Instead of having to pay two or three dollars it cost you fifty cents and you say that is a little extra but suppose it helps you to get home quicker. You see, it is money in your pocket. Our ambition is to cure you quick, to get you just as far along as you possibly can get so that when you get home you won't slide right back again because our reputation depends upon how you behave after you get home, whether you carry the improvement you get with you home or just quickly drop back into the same old rut again. Every single one of you in this

room tonight ought to get such a start in ~~the~~ three or four or five or six weeks that when you get home you will keep right on climbing~~ing~~. I got a card today from a lady who had a pretty bad case of rheumatism and she stayed until she really got started and she said, "I am just doing fine", and I got a letter from a man in Indiana the other day. His wife was thought to be a hopeless case. She had been given up on account of rheumatism. She has been here three times and got a little help every time but did not stay long enough. She tried this mineral spring and that mineral spring and the other all over the United States and her husband can give her every possible advantage and she tried ~~her~~ everything she could and finally got to where she was bed ridden and could not move a joint. She was perfectly helpless, had to be cared for like a most feeble infant. This lady was brought here like that and it looked like a very discouraging case, but in four or five months she went home so much improved that she was on her feet and beginning to walk, was using her hands and helping herself about her dressing, could almost dress herself alone, in fact, and care for her hair again which was a great pleasure to her, and her husband wrote me after she had been home six weeks and said, "My wife had yesterday a fifty mile ride in an automobile over a rough road and now she is running a sewing machine." I got that letter six months ago. The other day I got another letter saying, "My wife is still improving, gaining all the while." They took a nurse home with them from here and they have continued to follow this prescription I have made. They have followed the program right straight along and she has kept right on gaining. We are always glad to give you a prescription when you go home and to keep in touch with you after you go home and to help you to climb on up to the greatest possible health you can attain. Our ambition is to cure people. We have no other ambition in the world than to cure people and teach people how to live so as to keep well. Every one of these vacant hours in this program ought to be filled out. Don't forget to get out into the open air for an hour or two or three or four every day. I told a lady the other day she was to go out of doors for four hours every day. She said, "I don't know whether I can or not." I said, "I will see that you do it, indoors if you cannot get quite all that you need".

She has got to have the stimulous of that fine fresh cold dry oxygen taken down into her lungs. Every single breath is a little life, every single breath you draw spreads out down in the lungs over two thousand square feet of surface. Just think of it! and acting on that whole two thousand square feet of surface and all of that forty thousand square feet of blood coming along up there every three minutes, you see, getting exposed to that pure oxygen. Why! it is worth everything. I look out the windows and wish I could spend two hours out of doors. I am a galley slave, When I get through here I go home and work. I take a stenographer home with me and he makes me work until one or two o'clock every single morning and I have a day force and a night force to keep me busy. The world is doing its best to get all the possible work out of me and I am willing to be worked, but my business, my friends, with you is to help you to the way to health, to climb up just as fast as you possibly can but you won't work at it. That is the trouble. Getting out of doors is one important thing. Don't forget the dinner. Remember that we live high here, away up on the top shelf and when you go home put your system of living just as high as you can. The next time you build a house make your dining room at the top, then a sleigh ride. We advertise on the blackboard "A sleghride after dinner" and every body in the house out to be clambering to get into the sleigh and get a ride. This fresh air is of the greatest possible value. We don't propose a sleigh ride for entertainment but it is a real source of healthfulness. It is a part of your prescription. I want you all to get all the good you can out of these things. Chest gymnastics at three o'clock, then the school of health. Learn how to keep well after you go home and pass along the information you get to others, then luncheon and gymnastics after supper. This exercise is not for entertainment but it will help digestion, to assist the stomach in doing its work and to accomplish the needed purpose in your climb toward health. Then the health lecture, you are hear doing your duty and more than your duty on that. 9 o'clock go to bed. It is too late to go to bed at 9 o'clock tonight but I am going to let you off so you can go right away now. Don't forget the lecture on Wednesday as well as Thursday and Monday night. The Health School Tuesday and Thursday.

These are important opportunities for getting information that you can get nowhere else. I hope everyone of you will co-operate as heartily as you possibly can with your doctors to help you in the climb toward health.

End of this lecture.

I thank you for your attention.

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

March 3, 1913 at 8:00 P. M.

by

J. H. Kellogg, M. D.

From Note Book Page 4496.

Q. Which hours of the night are the best for sleeping?

A. My experience is that the best time for sleep is when I can get a chance. I begin my sleep about 2:00 o'clock in the morning or 3:00 or 4:00 o'clock but I would like to begin earlier. There is no doubt that from nine o'clock until five or six o'clock in the morning are the best sleeping hours. and the reason is simply because these are the quiet hours. Now it is noticed that the temperature of the body falls at night in persons who are accustomed to sleeping at night and rise in the morning. It is higher in the day and lower at night but in cases of persons who sleep in the day time and awake at night the temperature is higher at night and lower in the day so the habits of the body can be changed in this regard. The reason why it is better to sleep at night than in the day time, the only reason that I know of is that it is more quiet, the world is more quiet. Now a person may be sleeping soundly in the midst of noise but he is not getting the benefit of his sleep that he would get if it were quiet because with every little sound there is a little disturbance. There is an instrument known as the plethysmograph. You put your arm into the plethysmograph and the instrument writes upon a strip of paper by means of a pen and it make little waves up and down every time you breathe. When you breathe in there is a little wave that comes up and when you breathe out it comes down so it writes right along on this little strip of paper. Now if there is any change in the condition of the mind, any mental change of any sort it will be recorded right on that slip of paper. It is a very interesting thing to watch that record.

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Here we will say is the slip of paper, here is the curve going along here. Now all of the sudden there is a noise and down will go this curve right away, instantly if you pinch the patient or tickle him the curve goes down right away and so experiments that have been made with this instrument have proven that the brain is responding all of the time to all of to all the little influences and noises and disturbances that are going on during sleep so if there is a great deal of noise why the sleep is not profound. You may not become conscious but these external noises will perhaps be woven into the dream and hard work will be done by the body and the brain will do work just as though you were awake although of course, not so intense. Some of you have had the experience of dreaming of some terrible accident perhaps, perhaps of having the house burglarized or being in an automobile smashup or being run over by a train or something, you have a dream of something of that kind. You get into some terrible ordeal and get into terror for a moment and greatly excited and you wake up from such a dream and find yourself bathed with perspiration and with a feeling of exhaustion breathing rapidly and you really feel as though you had gone through the experience. Now,when a person has such an experience as that a certain amount of energy has been taken away from him. It is not just equal to having actually gone through the experience but it is the next thing to it. In consequence it is necessary to have quiet during sleep and the body should be in absolute quiet.and there ought to be taken up through the whole United States in every city in the United Stated a campaign against noise of railroad trains rushing through towns with a loud whistle and a terribe roaring and waking up everybody in a town. Such things ought to be prohibited by law. I hope that I shall live long enough to see the law passed in the state of Michigan. I am willing to do all I can to secure it. at any rate prohibiting these noises which are a public nuisance. A street car rushing by your house with a flat wheel -------- and rounding by jarring the whole neighborhood

perhaps at ten or eleven o'clock at night is a criminal thing. It ought not be permitted. The trouble is people generally are too docile,/too amiable and too tolgerating of the evil. We ought to rise up against such things and prohibit them. I will tell you a little experience I had with this street car company whose tracks run past us here. We used to have flat wheels and I compdained about it and finally succeeded in getting a law passed prohibiting flat wheels. Notwi th-standing the cars came up just the same with flat wheels and one night I heard a car coming from away down below here at eleven o'clock at night and it not only had a flat wheel but it had a screech owl on it besides something that had fallen down and was scraping on the wheels so it made the most frightful, screeching, screaming sound. It came up by the Sanitarium. Pretty soon I heard it coming back and I telephoned down to the police station hoping that something might be done to stop the thing but nothing was done so I succeeded in getting hold of a constable near by and got out and got aboard the car out here and arrested the conductor. I found that he was determined to run his car down. I told him I should go and borrow a shotgun and stand upon the tracks there and aim straight at him if he dared move that car. I told him I would tear the track up and I would see that is was kept torn up continuously if he did not stop that noise. Pretty soon I got a telephone message from the manager of the road wanting to know what I was stopping his cars for and I told him. I gave him to understand we would keep his cars stopped until he stopped that noise so we succeeded in getting a moderate degree of quiet on the road here. It is amusing the way these public corporations impose upon the public and upon a community for the sake of saving a few dollars in repairs. It is amazing what terrible inconvenience will be inflicted upon a whole community again and again and continuously and the most amazing thing of all is that the community will stand it. Now there is a proper time to rise up and protest. I felt it was my duty to defend these sick people in this house against this imposition and I determined to do it if I had to go to war about it. I am making this remark about noise because I think it is a matter of trememdous importance.

I suppose the most of you live in towns and cities and you ought to give a little attention to the matter. Prof. Morse an eminent scientific man of Salem, Mass. has given a great deal of thought to this correction and has written a little paper on the subject. In fact, several very interesting papers on the subject and has also given a little account of what has been done in various large cities in the way of stopping noise. For instance, in Detroit they won't allow a train to be run fast enough to make any noise and the train is not allowed to whistle inside of the city. As soon as the train gets into the town it must no longer whistle. They must find some other way of signaling to their employees than by the whistle and there are plenty of methods that can be adopted so in every town I think we ought to have laws that will prohibit unseemly noises. Sometimes a lumber wagon will come along with a lot of hoop iron loaded on it or some other rattling thing and will go down through the town over the cobblestone making a tremendous jangle and an awful noise right in the middle of the night or at four o'clock in the morning. Such things people ought to rise up against and protest against. Barking ~~xxxxx~~ dogs, crowing roosters and all sorts of infernal noises of that sort that keep the whole neighborhood awake should be suppressed by law and there is no reason in the world why ~~you~~ we should submit to it at all. We should rise up and protest because a man who wants to sleep must have quiet. If we don't have quiet we don't get rest. We may be unconscious but we are not having rest and there are thousands of people who are waking up in the morning only half rested, feeling languid and depressed and unprepared for the day's struggle, plenty of people who are simply suffering from noise. This has really gotten to be a very serious matter in all places in all of our cities at least. Factories very often work all night along and keep the thunder of their machinery going all night long and everybody within several blocks is exposed to the evil influences of that noise. Children are greatly damaged, particularly growing children when they do not have the absolute quiet and absolute rest that is absolutely and positively necessary for complete recuperation.

Q. Is Colax much better for the bowels than other kinds of roughage?

A. Not necessarily better. The principal reason why it is better is because it is absolutely indigestible. Cellulose which is found in apples and potatoes and most of our vegetables is so tender and so delicate that it is to some degree digestible and in some instances as much as 90% of this roughage we take in the form of lettuce, cabbage and that sort of cellulose sometimes as much as 90% of it will be digested but in the case of Colax it is indigestible. The body fluids, none of them will digest it. They will not act upon it so it is better on that account. Ordinary wheat bran is also a very excellent kind of roughage for the reason that it is also indigestible.

Q. Is castoria good to take as a laxative?

A. Well, if you read the advertisments you will certainly think it is very very good better than honey or any other delicacy you ever tasted bu_t the effect of it is certainly not good. All of these medicinal goods are harmful to the intestines. They cause irritation. They cause colitis and thousands and thousands of people have gotten colitis when they were babies and they have never gotten over it. They carry that disease as a handicap all of their lives. Now, colitis is a very serious thing. When you have the skin in ---- the skin surface of the body is intact poisons cannot find any entrance. One can rub upon the skin the venom of a rattlesnake without suffering harm but suppose there is a little raw surface there. Suppose the skin is off and there is a raw surface. Then that rattlesnake poison is absorbed immediately and the bad effects are produced. Now, Colitis effects the muscous membrane of the interior of the body exactly what an abrasion does to the skin. It produces a raw surface and the poisons produced by putrefaction in the intestine are absorbed through the mucous membrane. That is why so many thousands of people are chronically irritable and depressed.

Q. It is said that vegetarians cannot produce a single talented and handsome vegetarian born of vegetarian parents in England, America or Germany. Now has there ever been a famous long lived vegetarian brain worker who surpassed meat eaters in bodily strength and mental vigor at 120 years or more of advanced life?

A. Well, now of course, this rather a difficulty question because the field of observation is necessarily limited. Most people are meat eaters. Among civilized lands you will find very few people who are not meat eaters and it is also true that the great brain workers and the famous men and the talented men are civilized men. You would not expect to find very talented men among savages yet there are a few exceptions. Now, let me just name you a few very talented people who have been non-flesh eaters, who have been vegetarians and first of all I will name the father of us all, Good Father Adam. Now FatherAdam must have been a very talened man to have had such a great number of eminent and famous descendants. So you see we all certainly have respect for Father Adam. We won't any of us be willing to discount him for he was a relative of ours and he was a strict vegetarian. He lived to be nearly a thousand years old before he died and he had a grandson or a greatgrandson who was also a very famous man and a very good man, old Father Methusaleh who lived to be a little older than his grandfather did and he wasa little nearer a thousand years old than Adam himself was. Now we have good authority for this. The good book tells us that these man were long lived men because and gives us their age and also tells us they were vegetarians. If you want to know that all you have to do is to read the first chapter of Genesis and the 29th verse. When God gave Adam is bill-of-fare he told him that every herb bearing seed, every fruit tree bearing fruit to you it shall be they shall be for meat. That is all the meat they had was the meat that came off the trees and the leaves obtained from the herb. That was the true meat or fruit for the word meat in the Bible means food. When we came

on down further there was another great man. Did you ever hear of Buddha the great Hindoo teacher? Buddha has more followers this very minute. There are more people who believe in Buddha this very minute than there are who believe in any other religion in the world. I think that is true that there are more believers in Buddha than in any other religion more than all the christians in all the world, more than all the Mohammedans in the world. There are more believers in Buddha. Now he must have been a great man. He must have been a great philosopher. He must have had a great brain to produce a philosophy, a religious philosophy that has dominated the minds of so many millions and millions and generations of of people. Then there came another old great man. You have all heard of Pythagoras I am sure. Pythagoras was a great Grecian philosopher who lived some three hundred and fifty years before Christ. He was the great Grecian philosopher who first conceived that the idea that the earth revolved about the sun instead of the sun going about the earth. The ancients all supposed that the sun went around the earth and the stars and moon and all of these other heavenly bodies revolved about the earth. They did not understand that the earth revolved about the sun and that the moon revolved about the earth in some way but Pythagoras got this great conception that laid the foundation from modern philosophy and modern astronomy. Socrates simply adopted the philosophy of Pythagoras and Aristotle and Plato the man upon whose scientific teaching and all of the teaching that has come after them and the modern philosophy that is founded upon the teachings of these men, the modern methods of reasoning and of logic were founded upon the work of these men. Even quite a considerable portion of the christian philosophy through the work of the early Catholic fathers originated with a vegetarian mind for Pythagoras was a vegetarian and Socrates was a vegetarian. You need really to read that wonderful book of Plato's "The Two Republics" and you will find there a dialogue between Socrates and Glaucon. Socrates tells Glaucon that he ought to have a healthy city and he tells him particularly they should not have any meat but they would have fruits and grains and vegetables and would sit down on a grassy bank with palm leaves

for dishes and there they would eat dates, grapes and melons and bread and various simple fruits and Glaucon said, "Would you have no meat?" "Oh no, oh no," said Socrates. "Well but why?" "Well" said Socrates, "If we have meat then pretty soon we should have disease and if we have disease we should have to have doctors and if we have doctors we should have more disease, would we not?" Then if we have the meat too then we should have to have cattle and if we have cattle we should have to have pastures and as we increased in number, as our city grew we would have to have larger pastures. Then we should have to cut a slice off our neighbor's territory and then what would our neighbor do. He would go to war with us would he not? said Socrates, that disease and war and all the things that creates an unhealthy city are the result of meat eating and if we have a thoroughly healthy city we must exclude meat entirely. Then there was another great man. Did you ever hear of Seneca generally regarded as one of the wisest of all the old Romans at one of the ------- who in the midst of all the luxury, and all the degradation and the degeneracy of Rome, when it had reached the very pinnacle of its infamy. and Negro, Seneca in the midst of all that was a teacher of righteousness, of everything that was wholesome and clean and upright and among other things he was a vegetarian. Seneca after trying the vegetarian system for a couple of years reported that he found it contributed to clearness of intellect, to amiability of temper and to general good health and well being. Well, I might mention others of the Romans. There was Plutarch the author of "Plutarch Lives" which is the model biography of those who have lived since his time. Some of you have read "Plutarch Lives". It is the model for all biographies. Plutarch was a strict abstainer from flesh. He wrote an essay on flesh eating and if you will read it you will see how Dr. Kellogg got a good many of his arguments for I have not really been able to find very many arguments that Plutarch ~~did not~~ himself/urge (did not) away back there nearly 2000 years ago. Well, we have some great men in mordern times. There was Isaac Newton. Did you know that he was a vegetarian? If he was not a strict vegetarian all the time when he was accomplishing his greatest feats of intellectual work , when for instance he discovered the

the law of gravitation and he was applying it by the calculus or new mathematical science which he created the calculus when he was applying this law to the moon and marking out its course about theearth during ~~the~~ a whole years cycle

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During the week in which he was confining himself to this extremely arduous work in which he was actually making a practical test of his theories to see whether they were actually sound or not, he lived entirely upon a non-flesh dietary. Milton while he was conceiving the plot of Paradise Lost, his master poem, was living in Italy and his diet consisted almost entirely of macaroni and chestnuts and simple products of the soil which at that time were almost universally used in Italy and even Lord Byron, one of the greatest poets, one of the great literary men of modern times, when he was writing Childe Harold, wrote in a letter to his publisher and encouraged the publisher that he was soon going to have that piece of work completed and in order to encourage his publisher, he said, "I stick to Pythagoras. I will have it done in a couple of weeks." What did that mean? It meant simply that he was living upon a pyphagorean diet, abstaining entirely from the use of flesh. I might go on for an hour or two for the fact is that the greatest men who have ever lived have been non-flesh eaters. The most enduring men, the longest lived men have been non-flesh eaters. At the present time the biggest animals and the strongest animals are non-flesh eaters. What animal can compare with the elephant in strength and vigor and a very considerable degree of intelligence too. The king of the forest is a vegetarian. The gorilla is the real king of the forest. In the Congo region where the gorilla is found, there is a large area of some hundreds of square miles where the gorilla is found and no lyon has ever been seen in that country. No lyon is tollerated in that region. The gorilla will not allow him there. That is the truth about it. The gorilla is the real king of the forest. Now there is more to be said upon the subject but I will pass it along. If any of you want to find out whether non-flesh eating contributes to well being and endurance or not, just try the experiment and drop meat off ~~and~~ the bill of fare and see what a lift you will get. You won't find any loss, you will find a gain. There is no greater delusion that exists in the world today than the idea that one must eat a strong animal in order to be strong. Think what a preposterous notion that is! The ox gets strong by eating grass. Now if a man wants to be

strong the idea is he must eat a strong animal, such as an ox in order to be strong.

Q--What is the cause of hardening of the arteries?

A--Well there are three principal causes. The cause may be spasms, it may be because the arteries have become fiberous or perhaps because they have become chalky. Now if the arteries are hard simply because they are contracted that can be relieved and very quickly relieved. We see sometimes persons coming here with very high blood pressure because the arteries are in a state of spasm and we see that condition disappear within a very few days. For instance, I remenber a lady who came here with a very pale face, whose arteries felt like wires under the finger and her blood pressure was 240. After a few months it was 124. On the other hand the arteries may be as hard as pipe stems and chalky as we can see by the roughness when we rub the finger over an artery but the blood pressure may not be much above normal. If we find the arteries are hard we would rather find the blood pressure high than low because low blood pressure means the heart is worn out and can no longer keep the pressure up to the point where it is needed, with that kind of arteries. Hard arteries require high blood pressure, so if you have got high blood pressure and hard arteries, it is not the high blood pressure you need to be worried about but the hard arteries because the high blood pressure is a necessary consequence of the hard arteries which are shrivelled, narrow and contracted as well as hard. The important thing is to get those arteries softened up as much as possible. If you cannot get them entirely softened, get them softened as much as you can. A person who has hard arteries must make up his mind he has a battle on his hands the rest of his life. He has got to fight for every minute of life he is going to enjoy. He has got to fight constantly and it is marvelous what can be accomplished by making an intelligent sort of fight against old age. When old father time is right at your heels and you can almost hear his heart beating, seeking to overtake you to reap you, when old father time is pressing right hard after you by the right kind of a battle he can be driven back and held at bay for months and months and months and even years. I one time learned of a case in which a man had lived for

years with a blood pressure of 300. Think of that! but he didn't live recklessly; he did not live carelessly; he lived most circumspectly . He was every day and every hour living with reference to that high blood pressure and he was fighting it off.

Q--Are there any other Sanitariums run on the Battle Creek idea?

A--Well, I don't know of any in which the Battle Creek Sanitarium system is carried out. There is an increasing disposition all over the world to adopt ideas which have been in operation here for the last forty years. Now I do not say that these ideas, many of them were originated here, because we really have very little that is new here at Battle Creek. The most of the ideas you find promulgated here are very very old notions. This idea for instance of non-flesh eating of abstinence from meat, from flesh is not a new idea at all. That idea originated away back when man was created awhile ago. It is the old fashioned way in which Adam and Eve lived. There was not any butcher shop in the garden of Eden .so with the use of water. Why! the use of water is as old as the world. Every intelligent animal that lives knows about the value of water. When an animal, has a fever it rolls in the water. Go out in the country and you see a hog wallowing in the mire. The hog is not down there in the mire because he likes the mud but because he likes the water. He is taking a hot bath. Some people go down here to Hot Springs in Virginia and take mud baths and it is the same thing that the hog is doing, taking the mud bath. It is good for his rheumatism and his high blood pressure and his fever. You watch a hog that is about four years old and see how much rheumatism he has got, how he waddles along. If the butcher doesn't manage to get the start of nature by a few days, that hog will die of appoplexy or Bright's disease. He generally gets killed before Bright's disease kills him, so he gets gin kidneys, Bright's disease and all sorts of things. I once went to butcher shop in this city and asked the butcher for a hog's liver. "Why? he said, "I haven't got such a thing here". He said, "I never keep them. I won't sell them." I asked him why not. "Why", he said, "I have examined many hundreds of hogs' livers and I never found more than one in

one hundred that does not have abcesses in it. " "Now", he said, "Some butchers cut the abcesses out and sell the rest of the liver but I won't do it." Sometime ago I was talking with an official of the United States Government connected with the bureau of animal industry at Washington and I found that they had recently had a large lot of livers sent back from London, a great number of hogs' livers. A big shipment of them had been sent from Chicago to Liverpool and had been sent back. What was the matter with those livers? They were not complete. That was what was the matter. There were abcesses cut off and in England they would not have a liver that had an abcess cut off from it because they knew what the abcess was cut off for. They knew there had been an abcess in it. The English people don't like that kind of livers. A fat hog is always a sick hog and a diseased hog. If you see a man that is fat, strolling along, puffing for breath and evidently just about ready to drop from apoplexy, you know that that man is sick. Of course he is sick. Now a hog in the same condition isn't any healthier than a man is. The process of fattening hogs is a disease producing process in itself.

Q--Do you think we better eat our turnips and carrots raw rather than having them cooked?

A--No. You can eat ~~this~~ raw if you want to, if you take pains to chew these things thoroughly. They will furnish considerable foughage and will do you good for a while. It won't do anybody any harm if you take a good supply of other nourshing food. It is not necessary, however.

Q--Should one thrive on entirely rice diet after being accustomed to an American diet?

A--Nobody lives on a rice diet. Nobody can live on a rice diet. Dogs, cats and rats (rats can live on almost anything but rats would die if they were forced to live exclusively on a rice diet. The natives of India have fresh vegetables as well as rice and some fats along with it. They use a great deal of pulac or beans, in India a sort of leguminias seed, equivalent to our peas and beans. Peas, beans, fresh vegetables and rice together go along very well together, especially with fruit. One can live on a diet of fruit and rice.

Q—About two hours after I eat a banana I can still taste it. Does this indicate that the banana does not disagree?

A--No it indicates that you did not chew the banana enough. The next time you eat banana. take it in the form of a puree. If the banana is ripe as it ought to be it has a brown skin. Never eat a banana unless the skin is brown, otherwise it is not fit to be eaten. The banana must be luscious, it must be mellow like a peach and should have a brown skin. When a banana has a brown skin, then take off the skin and be sure to take off all the strings. Cut it up into a glass then with a spoon of fork beat it up into a froth like the white of egg. It will become liquid in less than a minute. Beat it until all the lumps are gone or an easier way is to put it through a colander. It will go through a colander very easily then you can feed it to a baby or the most delicate invalid can digest it. The trouble is the banana does not digest in the stomach. There is nothing in the banana that the stomach can digest. The stomach digests such things as gluten, fibrim, nitrogenous substances, but the banana does not require any stomach work. If you take a banana into the stomach in the form of lumps it simply lies there and is likely to undergo fermentation.

Q--One having rheumatic gout is troubled with prespiration on the least exertion. Please explain the cause.

A--Well there is a vasomotor weakness. The vasomotor centers of the spine are disturbed and there is a low nerve tone.

Q--If bile is found in the stools, does this not indicate the liver is producing more bile than is necessary.

A--No not at all. It indicates only that the activity of the bowels is sufficient to carry the bile down and expel it from the body before it has been absorbed. The bile is very largely absorbed. The poisonous parts are chiefly left behind but the bile is absorbed and is used over and over and over.

Q--Is there any kind of coloring matter that could be used on the hair that would not be injurious?

A--There are two or three things that don't do any harm. Nitrate of Silver is not injurious to the hair. Walnut juice has been used for the purpose. Tannic

and gallic acid and in a few instances permanganate of potash has been recommended but it produces a purple stain and not very desirable. The nitrate of silver is perhaps the most reliable of all kinds of stain. It produces a black of brownish stain but it is not healthy for the hair. Dying the hair is not absolutely necessary. In fact, it is better not to attempt it.

Q--Why is cream cheese, sweitzer cheese and limberger cheese not considered wholesome?

A--Because of the germs that are present. The process of cheese making is a process of germ culture. There are a lot of germs in the milk. If you take milk and sterilize it, you cannot make cheese out of it any more than you can out of grass. You can make cheese out of oatmeal just as quick as you can out of milk if you simply boil the milk. Take the milk and boil it and try to make cheese out of it. It won't work. There is nothing there to make the cheese because the cheese is first made into hard curds by the rennet you know, then the curds have to be gradually softened by germs and by molds and by yeasts. These molds work in from the surface. Cheese always has mold on the surface and the mold works down in the cheese and there are some yeasts in the cheese and germs of various sorts. These three organisms gradually decompose the curd and soften it, then the cheese is said to be ripe when it is decomposed up to a certain point.

Q--When there is no organic trouble with the heart but one is annoyed by irregular beating of the heart, is there any remedy to overcome this?

A--Yes it generally means some disturbance of the stomach. A nervous and painful heart can usually be relieved.

Q--Is puffed rice a good food? How is it made?

A--Puffed rice is a good food. It is not a complete food because the bran of the rice is taken off. It corresponds to fine flour bread. It is nutritious but it is not a complete food so something else should be eaten with in. It is made by heating the grains of rice in a retort with a very small amount of water. Then suddenly releasing the pressure and the pressure of steam in the little kernel of rice, when the pressure is suddenly removed causes expansion of the whole grain. The natives of India pop rice in a very interesting way. They mix

it with hot sand and the hot sand and the rice are tossed up and down together and make a very nice parched rice indeed. I saw the same thing being done by some Indian women down at old Fort Yuma as much as twenty years ago. They had gone out into the woods and gathered up some little round seeds about the size of mustard seed and they put these into a little wooden pan with some hot coals and kept tossing these up continually in the air and the seeds were turned out into great white snow kernels and were really very tasty.

Q--What is the cause of glimmering before the eyes followed by headache?

A--It is a congested condition of the eyes. Headache is the result of a toxic condition due to the absorption of poisons from some source.

Q--Would a high altitude affect one to have a pulse from 96 to 120 if there is no lung trouble?

A--The high altitude might not do it but sometimes it does instead of having the opposite effect. One should not take very vigorous exercise in a high altitude who has such a heart.

Q--When eating an orange, is it proper to swallow the pulp?

A--You can if you like if you don't swallow it in too large meshes. It is perhaps better not to swallow it.

Q--Where are the best milk cure Sanitariums in this country?

A--If any body needs a milk cure we are prepared to give it to you right here and do it more safely than any place I know of but experiments we have made upon this subject show that very few people are really definitely benefited by the so-called milk cure. The milk cure consists in giving the patient a glassful of milk every hour or every half hour. I have known people to take seven or eight quarts of milk a day. A large part of the milk swallowed in this way is not digested at all and the curds find their way down into the intestines and act as a laxative and the patient's bowels move very profusely and the whey of the milk is carried down into the colon and an acid condition is created the whole length of the alimentary canal so in some cases it is a means of changing the flora which is not altogether bad.

Q--What will prevent the hair from turning gray at an early age?

A--Nothing but keeping young. It is the only thing I know of.

Q--Why is one so liable to grippe who has once contracted the grippe?

A--That is true of pneumonia and quite a number of maladies. That when one has once had the disease ~~once~~ he is likely to have it again. The resistance is lowered is one reason and another reason is, the germs are very likely to linger about in the nose and tonsils and remain in the system and require only just a little lowering of the vital tone by taking cold or by the bowels becoming upset, inactive or by over eating ~~ob~~ by loss of sleep or some other kind of ~~an~~ departure from the normal state of health.

Q--What is the cause of grippe?

A--It is a germ disease and the cause is a particular germ known as the influenza germ.

Q--Should people with high blood pressure drink hard water?

A--Hard water does not make any difference with the blood pressure whether it is hard or soft.

Q--In cases of hyperacidity how is the best way to take Yogurt Tablets in order to secure the best results?

A--In a little warm water half an hour before the meal.

Q--If Yogurt Tablets are taken into the stomach will their effect be entirely destroyed?

A--Not if taken before meals with a little water. They will pass quickly out of the stomach before the digestion begins.

Q--What is the cause of the teeth feeling sore especially on waking in the night? if the teeth are in good condition?

A--This condition is due to the condition of the nerves which supply the teeth so that the ordinary pressure upon the teeth irritates these nerves when ordinarily the irritation will not be felt.

Q--What do you think of Listerine?

A--It is simply a nostrum. It is not a harmful nostrum, it is simply a collection of essential oils. There is no harm in it, at the same time it is not good for all

the things that are claimed for it. It does not cure typhoid fever or a whole lot of other things it is claimed to cure. It does not cure any of them. It is a harmless sort of anesthetic but it is not a disinfectant. A much better disinfectant you can prepare yourself at any time is this: Obtain at the drug store some ordinary cinnamon water. Put a tablespoonful of cinnamon water in an ordinary glass of water and ~~with~~ you will have a disinfectant which is much better than listerine and more agreeable.

Q--What causes mold?

A--I do not know. When I don't know I am willing to tell you so. I don't know what causes molds and I don't know anybody that does know.

Q--Why is rhubarb not used here?

A--Because it contains oxalic acid. Now oxalic acid is a capital thing for taking out stains. It is a chemical agent. It is not good to go into the stomach. It is very harmful and is a poison in the body and the acid of rhubarb is oxalic acid so it is absolutely unfit to appear upon the table and should never be eaten as a food. I might mention also that ordinary spinach contains quite an amount of oxolic acid and on that account, spinach should always be parboiled before being served on the table. Boil it a few minutes then turn the water off and that will carry off the oxalic acid.

Q--What could be the cause of a heavy unpleasant feeling between the shoulders that hurts one to take a deep breath?

A--I met just such a case as that an hour ago. The patient was a lady who had terrible pain between her shoulders and she was sure she had some trouble with her spine. Now I said to her, "Look here, let me examine the front side of your back." She was rather surprised because she didn't know the back had but one side. She never thought the back had a front side as well as a back side. So we examined the front side of the back by pressing a little up under the end of the sternum here and she was very much surprised to find an exceedingly sensible point. The pains in the back are referred pains. When a person has headache it is not because there is something the matter with his head. You know it is something the matter with your liver or your stomach. It is a referred pain, so these troubles in any

place along the back are referred pains. The pain between the shoulders is due to trouble in the stomach. Pain under the right shoulder blade is usually due to trouble about the region of the gall bladder. Pain under the left shoulder blade may be due to the stomach or the spleen or the liver. Pain lower down is usually due to colitis in almost all cases. These pains in the back thought to be kidney pains and [illegible] and pains due to disease of the pelvis or some other cause are nearly always due to trouble in the colon and not to these other difficulties to which they are nearly always attributed and an enormous amount of surgery has been done for pains supposed to be due to kidney trouble of some special trouble that required surgery of some other special treatment. Regulation of the bowels making them move two or three times a day so as to carry off the filth and waste matter that is causing the colitis will usually effect a cure in short time.

Q-- Are neuritis of the sciatic nerve and sciatica the same thing?

A--They may be the same thing. Sciatica may be due to other conditions besides neuritis. Some cases of sciatica are due to neuritis and some are due to some other cause. Sciatica is neuralgia of the sciatic nerve while neuritis is inflammation of the sciatic nerve.

Q--How do sciatica and rheumatism differ?

A--I can't quite tell you that. Rheumatism of the sciatic nerve is pain in the sciatic nerve occuring in rheumatic people. People who have rheumatism, who have pain in the sciatic nerve are generally said to have rheumatism of the sciatic nerve but this is not a very clearly defined disease.

Q--If a person has a very heavy coating of the tongue from intestinal disorders and it does not disappear in four weeks, [illegible] isn't it more than likely that it is in the small intestine [illegible] rather than the colon?

A--That is not at all a just conclusion. A case that has been developing for forty years will generally require more than four weeks for its removal.

Q--What is the cause of bile collecting in the stomach?

A--The bile runs up through the pylorus. The pylorus does not close and the bile passes up from the intestine into the stomach. It is a very common occurence but

generally does not do any harm. Some people are sensitive to the presence of bile in the stomach and are nauseated and vomit.

Q--What should be the diet in Bright's disease?

A--The important thing is to know what not to do. Never take coffee, never take beer nor alcoholics in any form, no tobacco, no poisons of any sort because the kidneys remove poisons and when the kidneys are ~~pickled~~ crippled then we ought to make the effort to remove poisons on the part of the kidneys just as small as you possibly can and we must eliminate meats. Why? because meats contain uric acid and the kidneys have to eliminate the uric acid and when one eats meat he had too much nitrogen and has too much urea and that increases the work of the kidneys and when one eats meat putrefaction takes place in the intestines from decay and indican, skatole and other poisons are formed and that imposes more and more serious distress and disability and crippling generally upon the kidneys. One must also avoid overeating in every way. The use of condiments must be discarded ~~xxx~~ entirely because condiments contain poisons which irritate the kidneys and water must be very freely used. Fresh vegetables must be used freely and particularly potatoes which are very valuable because they contain alkaline substances which help the kidneys and prevent the formation and development of acids in the body which increase the kidney~~x~~ disease.

Q--Are grapenuts as beneficial as Sterilized Bran?

A--Grapenuts represent the whole wheat, whereas, the Sterilized Bran represents one-twentieth part of the wheat, chiefly the cellulose of the wheat and of course is more bulky and laxative.

Q--Explain the principle of manufacture of Malt Honey?

A--It is simply cooked cereals, cereal starch which has been prepared and cooked thoroughly then projected to the action of the diastase of malt. This produces a very delicate sugar which is afterwards evaporated down in vacuum pans after the plan of making maple sugar.

Q--Is the use of Colax advisable where the stomach is extremely slow to empty?

A--This condition of the stomach does not necessarily forbid the use of Colax. If the Colax passes out there is no difficulty. In fact, the use of such material

as bran in such a stomach stimulates it and causes it to empty quicker than it otherwise would according to Cannon's experiments.

Q--Is fresh air necessary in sleeping rooms in zero weather?

A--Yes. Fresh air all the time. We may have cold air that is very impure. Cold air is not so likely to be impure as warm air but it may be.

Q--If there such a thing as physical culture for the face?

A--Yes massage of the face and gymnastics, working the muscles of the face is a method of exercising these muscles. Smiling is a splendid method of gymnastics for the face. Smiling and laughing are among the very best kinds of exercise for the face and for the brain too.

Q--What causes a person's complexion to change color, one hour being fair and the next hour very sallow?

A--The skin becomes sallow when the blood vessels contract. When the blood recedes from the skin then the pigment of the skin stands out alone by itself and produces a sallow effect, but when the blood is present the red tint of the blood added to the natural color of the skin changes the natural slightly sallow color and gives it a more lively color and the sallowness disappears.

Q--Is the sugar on the table in the dining room all beat sugar?

A--The sugar on the dining table in one [redacted] bowl, the white sugar is cane sugar and the brown sugar is malt sugar.

Q--What is the cause of infantile paralysis?

A--A germ. This is an infectious disease carried by stable flies. Please remember that the stable fly and all flies are dangerous because they carry this disease. This has been very definitely proven now and is quite well established, almost as thoroughly established as that the bite of a mosquito produces malaria. The bits of a stable fly is the cause of infantile paralysis so don't have them around your premises and see that they don't bite you or your children.

Q--Repeat the prescription for chilblains?

A--Hot and cold applications to the feet or to the hands or to whatever parts are chilled. If it is the feet put the feet into hot water for a couple of minutes then in cold water for half a minute. The time is not exactly important. It may

be a little longer or a little shorter. Put them in hot water long enough to get real hot then in cold water long enough to get real cold, not thoroughly chilled but until the heat is taken out then back into the hot water again. Keep the hot water as hot as can be borne and cold water as cold as you can get it.

Q--When water boils what kind of sediment is it that adheres to the kettle?

A--It is generally carbonate of lime or sulphate of lime. Sometimes it is carbonate of magnesia also. Sometimes it may be all three together.

Q--Will a prolapsed stomach and colon under a careful diet and treatment return to their normal position in a person fifty years of age?

A--You can get them back but they won't stay there. You can get them partly back near enough so you won't suffer any great inconvenience. The important thing is to keep the chest up, keep the abdominal muscles well contracted. A splendid exercise is running about on all fores. That method has been in use for a score of years or more. One time a certain great lord in Germany was recommended by his doctor to take this exercise and it became quite fashionable in certain circles for people to run around on all fores and play games and really it is very beneficial. I remember sometime ago our excellent Ex-Governon VanSant of Minnesota was down here and I was telling the Governor about that German and he said, "Why that is good" and down he went on all fores and he said, "I used to run around on all fores a good deal when I was a boy and I can do it yet" and away he went. I would not tell that on the Governor if I did not know he was perfectly willing. He is one of the most enthusiastic advocates and diciples of the Battle Creek idea I know of anywhere. Governor VanSant for the last ten or twelve years has been living strictly up to Battle Creek ideas and it has lifted him out of invalidism and threatened quick retirement from business to an active business man who enjoys life and is feeling younger every year. In one of his last campaigns in the state of Minnesota in which he was victorous, he told me that for one entire week he did not swallow one morsel of anything but water. He made three or four speeches every single day, traveled all over the state, was going all the while and did not take

a morsel of food during the entire week, simply drank water profusely and at the end of the week felt just as strong and vigorous as when he started. He could not have done that 15 years ago, but since adopting the Battle Creek idea he has found himself getting too fat. He was getting rheumatic, getting old and he found this made him young. I tell you my friends there is nothing like this simple natural living if you stick right to it, but you have got to stick to it, keep right at it, cultivate it year by year and you will find yourself coming up, coming up right along. If you want to get the testimony of people who are worth while on this subject, write to Prof. Irving Fisher, the head of the Political Science Department of Yale University. I do not hesitate to refer you to him because he often visit us here and stands up in the parlor and bears testimony to the things I am telling you here. A few years ago he came here an invalid and now he is one of the strongest, healthiest, hardiest men I know of anywhere and he lives right up to Battle Creek ideas. Another man you might write to is Mr. W. D. Simmons of St. Louis of the Simmons Hardware Company, another man is J. H. Patterson of the National Cash Register Company of Dayton, Ohio. Mr. Patterson is in trouble just now, nevertheless he is in good spirits notwithstanding, for I had a very cheerful letter from him a day or two ago. He is living up to Battle Creek idea in diet. I don't know about the rest of it I am sure, but he was an invalid a dozen years ago and came here a broken down man, had no prospect ahead of him at all and today he is a lively, vigorous, pushing, business man with tremendous endurance although he is about 66 or 67 years old and he does not look that old at all. And you sit down with him and you will see that he is a man who is very very wide awake, and intellectually active and keen. It pays to be good. It pays to obey nature's laws. It pays to find out the natural way and travel in it. The trouble is to get people to believe that long enough and earnestly enough to really stick to it.

Q--Have you a book telling what meats are harmful?

A--It does not require a book to tell that. It takes only one word. They are all harmful. There is not a single meat that is to be especially preferred

above any other meat.

Q--After eating Laxative or Bran Biscuit my throat becomes extremely dry, what is the cause?

A--Probably the cause is there is more liquid material carried away from the body and you need to drink a little more water.

Q--Does slowness of emptying the contents of the stomach usually indicate some obstruction of the ~~pyl~~ pylorus opening?

A--Yes it does in a large proportion of cases.

Q--Is the drinking water of a sistern that shows sediments after boiling injurious to the kidneys?

A--That is rather unusual. I should say such water ought at least to be filtered before it is used.

Q--When in the home how can you express the juice of the apple so as to have fresh apple juice?

A--Use the little meat presses. There are little cider presses made now a days that you can chop up the ~~apple~~ apple and put it into and grind it up and this takes the juice out very handily.

Q--What are the symptoms of hardening of the arteries?

A--One of the principal symptoms is high blood pressure. Loss of memory is another.

Q--Is it good for the health to chew one's food with the lips parted?

A--Well it is not a thing I can answer categorically. If you cannot keep your lips closed it is better to chew with them open than not to chew at all but I cannot see that there is any particular advantage in it.

Q--What is the cause and cure for considerable dryness of the skin?

A--The cure cause is to get your skin more active, exposure to the air will help the skin and rubbing the skin is good. The immediate cure is to put some lubricant on it, olive oil or very fine ~~xxxxx~~ vaseline or what we call Dr. Bulkley's skin cream. That is a very simple preparation. You can add to an ounce of cold cream one dram of lenoline and two drams of boroglyceride and six drams of cold cream. It makes a most delightful application to the skin, keeps the skin perfectly soft, protects it against cracking and irritation especially when you use hard

water ex for trouble of that sort. If there is anybody here who has any difficulty of that kind as some people do in taking baths in cold or dry weather a little of this cream rubbed upon the skin keeps it in perfect condition and relieves the irritation.

Q--Are hemorrhoids a cause of asthma?

A--NO, but the two things may result from the same cause, autointoxication.

Q--Can a winter bronchial cough of eleven years' standing be cured?

A--Yes it can be cured. It is not due to the winter but to a disordered state of the bowels probably and it can be readily cured. All cases of this sort are curable.

Q--Is there a cure for Bright's disease?

A--It may be stopped, controlled. The symptoms may be made to disappear but, of course, when the kidney has been damaged that much, the harm has been done and cannot be entirely repaired but I see it is bed time and I must let you go.

I thank you for your attention.

v-p

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

Monday, March 10, 1913 at 8 p. m.

by

J. H. Kellogg, M. D.

Q---What is the best diet for arthritis?

A--Arthritis is the scientific name for rhemuatism, although rheumatism is a name which covers a multitude of different conditions. When I was a medical student one of our professors gave us a lecture on neuralgia and after finishing his lecture or when nearing the end of it, he said, "Perhaps I ought to tell you what neuralgia is before we get through discussing this question. Neuralgia is, young man, a name we apply to a pain when we do not know what makes it. When we do not know what the cause of pain is, we call it neuralgia. If it is due to inflammation then we say it is inflammation; if it is due to an injury we say it is a bruise or a puncture or something else, but when we do not know what makes the pain, then we call it neuralgia." Now rheumatism is a term which has been very extensively applied to pains accompanied by a swelling and tenderness but without any evidence of inflammation. It is simply a sort of modified neuralgia, so to speak. It is a name that covers a multitude of conditions that have not been thoroughly understood. Now modern study of this subject has shown that rheumatism is really a very concrete thing and a varied thing. There are different kinds of rheumatism. There is rheumatism and rheumatism. There is rheumatism of the nerves, rheumatism of the bones, rheumatism of the muscles and rheumatism in which there is no swelling, in which there is no inflammation and there is rheumatism in which there is inflammation, erosion of the bones, enlargement of the bones and ulceration of the bones and a great variety of changes and it is found that these different conditions called rheumatism are really due to many different causes and different conditions, not all the same by any means. Arthritis is the term that is usually applied to changes which take place in the bones or joints, in the bones and cartilages. These changes are of two kinds. They may be a hypertrophy or enlargement, growths of nodules, sometimes little spicules, sometimes little growths that look like stalagmites or stalactites, sometimes warty growthy, sometimes ulcerated processes,

sometimes the whole bone seems to be leaving its bony character, becomes thin, weakened and less opaque to the X-ray. The cause of these condition is the important thing to recognize and to consider. We find that these conditions are largely due to germs and to the poisons of germs, Poisons produced by germs in the intestine and to germs themselves, sometimes finding entrance to the body from different locations. The fact has been discovered that so-called rheumatism is sometimes depended upon a diseased condition of the tonsils. When the tonsils are in a state of chronic inflammation, certain germs find entrance to the tonsils and growing there produce their poisons continuously and sometimes the germs themselves find their way into the blood and from the blood they get into the joints, in the joints of the fingers, in the wrist joints, in different joints in the body and become located there and make mischief. It has been found quite a number of cases of rheumatism have been cured by removing diseased tonsils. Diseased tonsils are removed and the rheumatism disappears. A number of cases have occurred in which some diseased conditions of the nose have been cured and the cure has been followed by a cure of the rheumatism. So diseased conditions of the teeth have been found to be associated with rheumatism and diseased conditions of various parts of the body, but the most common seat of this infection, I am thoroughly satisfied and I think a good many others are satisfied, is the colon. Dr. Arduthnit Lane of England has discovered that certain conditions of the colon are unquestionably the cause of rheumatism because he has cured these conditions by removing the colon. Now this represents something of the alimentary canal. This is something of the representation of it as it is. This represents the stomach. The small intestine passes down behind the colon and finally finds its way down to the colon through a little valve here called the ileocecal valve. Here is the colon. Here is the ascending colon, the transverse colon. Here is the descending colon, the pelvic colon and the rectum. Now it has been found by Dr. Lane and others that diseased conditions down here in the lower part of the small intestine and in the colon frequently become the cause of rheumatism. When I was in London a year ago, Dr. Lane showed me a number of cases in which he had preformed operations. In one case, a little girl I remember about twelve years

of age who had been a complete cripple, was absolutely crippled, every joint in her body was affected with rheumatism. Her limbs were twisted out of shape to some degree and they were all swollen and the poor child had been absolutely helpless for three years. She was brought to the hospital and Dr. Lane preformed an operation upon her. It seems a rather a formidable operation. This operation consisted in cutting the intestine in two at this point and bringing up the end of it here,of the small intestine,and attaching it in here at this point so that the intestine was cut off here,so that the food material instead of passing all the way around through the colon and thus out of the body, passed from the stomach through the small intestine and into the colon at this point and out of the body by a more direct route. In three weeks' time this little girl began to improve and three months had passed since the operation had been preformed when I saw her and she was able to sit up in bed, to move her arms and libbs and she was evidently advancing rapidly toward health. Dr. Lane has preformed this operation in quite a number of similar cases with most striking results.) Patients having been almost absolutely incurable have gotten well. Dr. Lane is one of the leading surgeons of England. He is the head surgeon of Guy's Hospital, one of the large hospitals of London and a man whose authority is respected over the entire world. He has made many very important contributions to surgery, made from important discoveries with reference to the treatment of bone fractures and the cure of hair lip. His operations are regarded as crisital (?) operations the whole world over in this particular class of cases. When I was in Vienna last winter Dr. Lane happened to be in Vienna at the same time and as soon as it was known he was there he was lionized by all the surgeons of Vienna and he operated upon cases in which the best German surgeons had operated and failed. I saw himself do an operation that had been twice done before unsuccessfully and he did it with the kinds of instruments which he found there but, nevertheless, the operation was entirely successful and some wonderful cures were effected. (Dr. Lane is not a sensationalist, he is not a faddist, not a man of obscure standing but is one of the great surgeons of the world and Dr. Lane himself showed me the cases on which he had preformed this operation of cutting out the colon or rather short circuiting the colon and

the patients were making most wonderful recoveryes as a result of the operation. I have preformed the operation myself quite a number of times within the last eight years. My first patient, I think I operated upon about eight years ago and with some very striking results, nevertheless, I am not at all inclined to recommend this operation as a cure for rheumatism because I think we should cure these things without this operation and I told Dr. Lane so. The reason why Dr. Lane preforms this operation is to get rid of the putrefaction that is taking place in the colon but when this operation is preformed it is possible there may be a backing up into the colon. It may be the material does not find its way straight out but backs up into the colon. That is entirely possible. (In some cases that I saw, Dr. Lane found it necessary to operate the second time and remove the colon because of this backing up, so the operation is not altogether the most desirable kind of operation.) It is rather a serious operation. We have two or three patients in the ward now upon whom I preformed the operation but it was necessary. In one case there was obstruction here in a patient 77 years old and the man had nearly lost his life on two or three occasions and it was necessary to do something to save his life so, although he was 77 years old, a week ago yesterday we preformed the operation and transplanted the intestine over to this point and he is making a perfectly good recovery notwithstanding his advanced age,but we were very anxious about him, of course, and should not have preformed that operation if it had not been absolutely necessary. I never preform the operation for rheumatism and doubt if I ever shall preform it for rheumatism because really the only thing this operation does is to change the flora of the intestine. The cause of the rheumatism is the growth of bacteria in the colon. We have to change the flora. When you look out your front door into your flower garden if it is in the front yard, it ought to be in the back yard, and if you look out your back door into the flower garden where it ought to be, you see it is all covered with big weeds, pusley, Canada thistle, pig weeds, thistles and all sorts of unsightly weeds growing there where the roses ought to be blooming and your poppies and lilies and dahlias, etc. all in bloom, but you see instead a lot of noisome. Now what do you do? Why, you

change the flora of your fixmr flower garden. You want to get rid of those horrible weeks and you want to put in instead, the cultivated flowers, the flowers that have beauty and grace about them and pleasant aromes. Now that is exactly what the chronic invalid needs to have done and what the man suffering from rheumatism needs to have done. It is the very thing the man who has Bright's disease needs to have done. It is exactly what the man who has hardening of the arteries needs. The very same thing is necessary for the man that has got serosis of the liver. We must get rid of these poison-formfing germs and these weeds that are growing in the colon, the wild germs as Prof. Metchnikoff calls them. Meat germs Dr. Herter calls them. Dr. Herter of New York, perhaps, the greatest bacteriologist this country has produced calls these meat germs because he finds these very same germs growing in meat and that is where they come from. Prof. Tissier of the Pasteur Institute who studied these intestinal germs first, perhaps, more thoroughly than anybody else has ever studied them before, I am glad to say Prof. Tissier is our consulting bacteriologist so we get the latest ideas direct from him, direct from the Pasteur Institute through Prof. Tissier. I am in constantky communication with him and Prof. Tissier became so impressed by this fact that the germs he found in the colon of a person living upon a meat diet were exactly the same kind of germs that he found in a piece of rotten, decaying, putrefying meat. He became so impressed by that fact that he stopped eating meat and for the last ten years he has eaten no meat. He has been a very strict abstainer from flesh. He never touches it under any circumstances because of these germs that are growing in it. And you cannot go to a meat shop and get a piece of meat, unless it is meat that has just come from the slaughter house, you cannot find a piece of meat offered for sale even in the slaughter house that is not swarming with these bacteria. Prof. Tissier made this experiment. He obtained meat from various sources sealed in local glass tubes and he said he found it impossible to get meat so quickly after an animal was killed that it would not within a short time show all the germs of putrefaction. He could not get it so quickly after the slaughtering of the animal that when it was put into a tube and sealed up it

would not after a short time show all the germs of putrefaction. They develop in the meat with such great readiness. Now we do not eat meat here at the Sanitarium. We have not for a great many years encouraged the use of meat. I have not myself eaten a pounds of meat in forty seven years and the reason why is not because of what is in the meat but because of what happens to the meat after you eat it. It is the putrefaction which takes place in the undigested remnants of meat lying about in the colon. Dr. Lane gets rid of the colon and so cuts out the sewers in which these materials are undergoing putrefaction. So Dr. Lane has shown that putrefaction is probably the principal cause of rheumatism. Now as I said, I do not think it is necessary to preform this operation to cure that disease. It is only necessary to change the flora. Dr. Lane changes the flora by putting the small intestine down close to the edge of the colon, changing its point of emptying. We change the flora by changing the diet. Now if you had here three fruit jars, one containing apples, another containing bread, and another with beefsteak in it and shut them up tight and put them away for a couple of weeks then examined them, you would find a very different situation. The apples would be all right. There wouldn't be any unpleasant odor. In the bread there might be a little flavor of mold but when you opened that jar that has got the beefsteak in it, you will hasten to the open air. You will be glad to get away from the vicinity of that putrefying meat. Now why? Why, because the germs of putrefaction are already right there and not only that, but the beefsteak is a kind of food that these putrefacting germs like best and so by changing the diet we can change the germs. Down in the basement, down in our cooking school, we have a fruit jar in which there is a pound of beefsteak and that pound of beefsteak has been in that fruit jar five years, going on six years . Next june theseventh day of next June it will be six years since I put that beef steak under that jar with some Yogurt Buttermilk and it absolutely is sweet. There is not the slightest evidence of decay in that beefsteak. It is just as sweet and perfectly fresh as it was when it was put into the buttermilk five years ago or five and one-half years ago. On the 7th of June every year we have a kind

of anniversary to celebrate the planting of that beefsteak. There is no reason why it should not last for fifty years. It has not deteriorated a particle, has not grown old a day apparently. It is just as tough as it was when it was put in there. It does not show any evidence of getting tender at all. Now if that had been lying up somewhere in a refrigerator by this time it would have been very tender. It would have been corned beef long ago. In fact, it would have had a very high flavor at the end of five years or so. (Mr. Armour's manager told me that Mr. Armour always keeps his Christman beef three months before he sends it out. What would be the situation of a dead body that had been lying around six months and had been neglected to be buried. Now that is the situation of the beefsteak you are eating. When you buy beefsteak of Mr. Armour and get his best beefsteak. It is simply"neglected to be buried" beefsteak. A corpse I was going to say because that is **raally** what it is.) Now we eimply change the flora, don't you see, by changing the diet and with the change of diet we change entirely the character of the bowel discharges.) I did not discover that. Prof. Bouchard, the great French Pathologist is the man that first called attention to that discovery. He made the discovery. He just took a man who lived upon an ordinary mixed diet, who ate beefsteak and he took the bowel discharges of that man and made a watery extract of it. Then injected this watery extract after filtering it, into rabbits and he noticed how much he had to use and it took a certain amount to kill the rabbit,--that is it took a certain amount to kill a rabbit that weighed two pounds. When he took twice as much it would kill a rabbit that weighed four pounds. He found just how much of this extract it took to kill a pound of rabbit. Then he took the bowel discharges of a vegetarian of a man who eat no meat and he examined that and tested it in the same way and he found it took twice as much to kill the rabbit as it did in the case of the man who ate beefsteak. Prof. Herter of New York repeated ~~this~~ the experiment ~~in a different way~~. Prof. Bouchard injected this filtered material in to the veins of the rabbit. He injected it into one of the veins of the ear of the rabbit,,this filtered material, clear solution, but it had gotten poisoned out of the bowel discharges and he found it took twice as much of the vegetarian

extract as it did of the extract of the meat eater. Prof. Harter of New York repeated the experiment in a different way. He made these extract in the same way from the bowel discharges and injected the clear solution into the abdomen of the animal right into the abdominal cavity with a fine syringe and he found that when he used the material from the bowel discharges of meat eaters while of dogs that are meat eaters, the animals died within three or four days. They were sure to die every time but when he used the material from a vegetarian or from vegetarian animals, horses, cows and other vegetarian animals, the animals did not die at all, they were able to survive. That showed there was a poison in the colon of meat eating animals and meat eating men, poisons produced which are capable of producing death in small animals that are susceptible to these poisons. Now it is my thorough belief that the chronic diseases from which men and women suffer are very largely due to these poisons. Dr. Herter showed that also, although he was himself so far as I know a meat eater. His experiments I should think would have led him to discard meat. He got facts enough at any rate and I rather have the impression that he may have arrived at that conclusion as a practical thing that meat ought not to be eaten in his own case. Nevertheless, I do not know that. He made this observation. (Dr Herter) He took twenty people who were suffering from rheumatic gout and he made an examination of their stools and he found germs that are capable of producing these poisons, Meat germs in every single one of them in great numbers. He took twenty-two cases of pernicious anemia and made the same examination in those cases and found these germs were present in enormous quantity in every case, These terrible poison forming germs, Welch's bacilli. Now there was proof that these germs which produce the damaging poisons I have been telling you about were present there in those cases. Now the thing we undertake to do in these cases is to change the flora, to get rid of the germs that make these poisons and the best way of doing that is, first of all, to change the diet, to change the soil of the flower garden, if you please, and the next thing is to increase the activity of the bowels so that they move three times a day as the bowels ought always to do and the next thing, if necessary, we will introduce friendly germs. That is,

we will sow the seed of health germs, of protective germs, the bacillus Bulgaricus, these sour milk germs. We will sow these germs and now we have two other germs besides the bacillus Bulgaricus. We have the bacillus bifidus, discovered ~~by~~ by Tissier and the glucobacter which was more recently discovered in the Pasteur Institute and we have all three of these which may be used in combination,-- that is we sow flower seeds in the place of weeds to kill out the weeds and we find a great improvement. I met a lady in the hall to day and she said, "Doctor I am going home a week from next Friday." I am going to do my very best to keep her from going because she ought not to go. She said, "You know if you let me go I will keep right close to my program. It has done me a world of good." Now it only four weeks since that lady was scolding me because she was not getting well faster. She said, "I have been here ever since the first of January and I don't feel any better than when I came. I am still just as stiff as when I came. I can hardly walk and I feel so clumsy and I think I ought to be getting along faster." I said, "Just wait awhile". It takes a long while to reconstruct the body. Ten days ago she said, "Doctor, I am getting better. Why, you know I can walk without limping and I am feeling very proud of myself" and tonight she is feeling so frisky and gay that she says she is going home in a week or two but I am going to get hold of her and hang on to her just as hard as I can for another month because we see such improvement from changing the flora, That is the thing we have been depending upon in her case. There isn't any magic or laying on of hands or any magic work at all about it by which this patient is being made better but by simply changing the flora and co-operating with nature in her effort to remove the causes of disease we build the patient up on a healthy basis.

Q--What is a good hair tonic?

A--Fresh air and cold water. Go bear headed out in the sun and shampoo your head or your scalp with cold water twice a day.

Q--What is the reason why some men when they stop smoking have a terrible hankering for it while others do not?

A--Well now I can't tell you why. I can'ttell you why. There isn't any difference, it is simply an idiosyncrasy. There are some people that inherit a liking for tobacco. There are plenty of people that smoke and enjoy the first cigar the y ever smoked because the smoking has come to be such an extensive, almost a universal practice among men that a great many boys and girls too are being born into the world with a true disposition to like tobacco and a unfortunate thing it is because it is binding this vice upon the race more and more tightly. It is true, however, that the majority of people who come here and adopt the Sanitarium diet get into a healthy normal state in the course of three or four weeks and have no desire to use tobacco. I met,a short time ago, a young man who had been for some time connected with the New York Herald as a reporter and he got into the habit of smoking and had been smoking very hard. He had been here for a little time and he said, "Doctor I am never going to smoke again I am sure." I said, "Why not." He said, "Why because it fairly made me sick. I tried it the other day and a few whiffs of it made me sick and I never want to try it again". That shows what a complete change had taken place in that young man and I have known it in a great number of cases. Some persons who have been smoking for fifty years, after several weeks disuse of tobacco and adopting these simple natural foods and natural habits of life, find that there natural instincts had been restored to such a degree that this horrible week was offensive to them.

Q--What can be done at home for colitis if it has not been completely cured here?

A--The best think you can do at home is if you have not got your colitis entirely cured up, is to make arrangements to get back again as soon as you can. That is the best thing you can possibly do at home, because I want to tell you that colitis is not an easy thing to get rid of. Colitis is a regular snapping turtle. It gets hold of you and it just want let go. It is a very serious thing. Look at this little rough drawing upon the board here. See what a large organ the colon is. It is five or six or seven feet long in these cases who suffer from colitis. The colon is redundant. It has fallen into folds and festoons and coils and loops. There is a great amount of redundant colon. I have seen colons

ten feet long. I measured a case a little while ago in which this pelvic loop extended clear up above the liver and that loop was more than four feet long when it ought to have been about a foot long. It was four times as long as it ought to be and other parts of the colon were elongated in the same way. That colon was fully ten feet long when it ought to have been five feet long only. This colon was ten feet long and in some places as large as ten or twelve inches in circumference and a diseased condition the whole length of it. Just think of it! the colitis ten feet long in other words and how do you expect it is going to be cured up. You must not think for a minute that it is easy to cure such a thing as that. Suppose you had a sore arm, that the entire arm was raw, diseased or the entire leg was covered with disease, was raw the whole surface of it. You would expect it would take some little time to cure it up, wouldn't you? Some people think getting well is like sliding down hill. If you once get started you just keep going. On the other hand getting well is climbing up ~~hill~~ hill all the time. Getting sick is sliding down hill, but getting well is a hard, up-hill climb continually and it generally the case that the climber needs a good deal of boosting. I remember 30 years ago, just about this time I was down in Italy climbing Mt. Vesuvius and it was a very hot winter's day down in Italy or a hot spring day, and the valcano was belching out flame and hot gasses and melted lava was flowing down the side of the mountain, and the hot ashes were all over the side of it where I was climbing up and we had about half a mile climb through that hot ashes and it was an awfully ~~xxxxxx~~ arduous task. There were a couple of men along with me climbing too and each one of these men had a man in front of him with a rope and he was hanging on to that rope for dear life and two men behind him pushing him just as hard as they could push. I wanted to try my metal so I didn't have any boosters, but I confess I was pretty well finished when I got to the top, but as I looked back and saw these men coming along, I said to myself, "That is exactly what we have to do for sick people at the Sanitarium". We have to pull them and push them. We have to boost. There was one great big fat fellow with four men carrying him on their shoulders. He was not climbing at all.

Some people actually have to be carried up the mountain side, but getting well, I tell you is mountain climbing, it is not sliding down a toboggan, but climbing up a steep mountain that has a rocky path, and you cannot expect if you go home carrying your disease with you that you brought here that you can be sure of getting rid of it. Suppose you got out in the Rocky Mountains and discovered a gold mine and were just getting out great big nuggets of gold there. You say to yourself, "I am getting rich so fast, I am going home," and you go home then somebody will come and jump your claim. You won't expect to get any gold out of that place without some digging. This is a thing in which you cannot get anybody else to dig for you.in this particular kind of mining. You might, perhaps, hire a miner to work for you in the mountains, but in this kind of mining you have got to dig yourself. You only get the gold you dig out for yourself and you cannot take the mine home with you ~~here~~ because here you give your whole time to it. See how many things you do. You get up in the morning and the very first thing you do is something to give your health a lift and the next thing you do is to give your health a lift. You go down and get your spray to give your nerves a healthy thrill and get your nerve centers started, get your heart going, get your blood circulation started well and get ready for breakfast and have a good appetite. Then you go out for a walk, then come into the gymnasium for your little breathing exercises. Then you have breakfast and go to the parlor for family worship, afterwards go up to the dining room for your breakfast and that is a very important part of the day's program and then you have gymnasium exercises again then your bath then massage, manual Swedish movements, perhaps, the electrical department for statis or something else, then the outdoor gymnasium or some where in the gymnasium at the apparatus or an outdoor walk and by and by comes dinner. The after noon is full in just the same way. Every half hour you are doing some-thing to give yourself a lift. You are making a business of getting well, of cultivating health and that is what you do not do when you go home. When you go home you make a business of neglecting your health. You will do one or two things, eat right, perhaps, as nearly as you know how and that is about all you do. You

put all your strength into work, into preforming your social duties or into something else beside working for health. Now the average man stays here 27 days and the average woman 37 days. That is the average the whole year, we find and that is a very short time to devote to curing a chronic disease. We don't expect, as a matter of fact, that you are any of you going to get it entirely well before you go home, but if you have got an acute infection like colitis or a chronic infection like colitis, it is important that that thing should be cured, if it is possible to do so, before you go home because you are going to be liable to a relapse any time. If you get entirely free from it before you go home, you are liable to a relapse after you go home if you do not walk very straight. It is easy to get that thing back again after you have gotten entirely away from it. I wish we could get every person who visits us here to stay just one week more than they do. If we could get every man and every woman on an average to stay with us one week more they would get, on the average, twice the amount of good they do get. I am satisfied that the benefit would be, if every man and woman should stay a week or ten days longer, they would get double the benefit they do get. Of course, the great benefit after all that they get is in living right after they go home. There is no doubt about that. I must say another word about this thing. If you have had colitis and have been here at the Sanitarium and gotten over it, when you go away the best thing in the world you can do when you get home, is to keep right on living after you get home the way you lived here so as to keep yourself above colitis, to keep out of that slough. Stick to it when you get home.

Q--When a cathartic such as calomel or rhubarb has been taken in the form of powder, why is it that the bowel movement is of liquid consistency, the first part being formed, what is the source of the liquid?

A--The reason for this is this, that in the lower part of the colon there is material which has been lying long in the colon and the watery part has been absorbed from it. Further up in the colon there is material that has not been there so long and consequently still contains a good deal of water. However, when one

takes a laxative which produces watery stools, a large part of the material is poured out from the blood for the purpose of diluting the poison you have taken. A laxative is a poison. Calomel is a poison. Any drug which acts as a laxative is a poison and if you take an extra dose of it, it might easily produce fatal effects. Most all cathartics are very irritating poisons and a sufficiently large dose will produce fatal effects. Even a big dose of common salt will produce fatal effects. Let a child drink a pint of saturate solution of salt water and it is just about as fatal to the child as shooting the child through the head with a bullet. Even common salt taken in large doses has produced fatal effects more than once. Children have been killed by drinking brine, so all these laxatives that are supposed to be even the most harmless are more or less damaging and it is the effort of the body to defend itself that causes the tissues to pour out a large amount of liquid material into the intestine to wash away the poison.

A—Is there a cure for locomotor ataxia?

A—Yes and no. locomotor ataxia cannot be cured entirely, but, not infrequently a man whose legs have been so waggley he cannot walk at all, can be gotten on his feet and made to walk so well you would hardly know there was anything the matter with him at all. Prof. Fraenkel of Berlin showed by careful training the ability to co-ordinate the muscles and to balance the body on the feet can be reacquired so a person who has locomotor ataxia till he can hardly walk at all can be trained to walk. That is one feature of the great progress that has been made within the last twenty-five years.

Q—What is the best Bran Biscuit or Colax?

A—They are both good.

Q—Which is better Olive Oil of ordinary butter?

A—Olive Oil or ordinary butter has about the same value as foods. Many people do not like Olive Oil and for such people butter is better. Olive Oil is somewhat better, perhaps, as a means of preventing an excessive flow of gastric juice as shown by Pawlows experiments.

Q--I have catarrh of the stomach. I have been taking treatment for it for a period of four months and still have sour liquid coming up about two hours after meals. What would you advise?

A--I advise you to come down to see me at Room 100 at 5 o'clock tomorrow afternoon and I will inquire into your case.

Q--Do you use cane sugar on the table?

A--Yes there is can sugar on the table but there is also Malt Sugar. The fine brown sugar on the table is Malt Sugar. The white crystaline sugar is cane sugar. The Malt Sugar is better. If you will train yourself to use Malt Sugar instead, you will find greater advantage. If you are accustomed to use cane sugar on your cereals for example, on your breakfast cereals, discard that practice. Cease it because it is damaging. There is no question about it. It is irritating to the stomach and harmful. Instead use the Malt Sugar you will find on the table. You will find it very agreeable on cereals. Also it is very wholesome used with fruits. It is a good thing to take home to give to the children. The children can eat all the Malt Sugar they want because it is simply bread which is already digested ready to be absorbed, whereas, the cane sugar is an irritant. New York doctors as well as the English and German physicians have, within the last few years, made the discovery that Malt Sugar is the best kind of sugar for babies; that the proper use of Malt Sugar cures a great many of the troubles babies are subject to; that the best food for the baby is Cow's milk diluted with water and sweetened with Malt Sugar. This has come to be the practice in a great many hospitals now and is coming to be more and more extensive. We have been making this Malt Sugar for our patient for at least twenty-years and I was very much pleased to note that recently a large firm of chemists have gone into the manufacture of Malt Sugar in New York City, so I suppose now there will be a great deal more of it used.

Q--What are some healthful and economical cooking fats. How about Crysco?

A--Well this question of fats is one of the hardest questions to be settled. It is really one of the most difficult questions. Nut oils are probably the best of all fats. I think there is no question about this. Olive oil and peanut oil

and filbert oil and almond oil, all the oils are more or less easily digestible and more easily digestible than butter, very much more easily digestible than tallow, suet, or any of these harder animal fats. Their digestibility is partly due to the fact that their melting point is higher. All of the fats that have high melting point, other things being equal are much harder to digest than those that have low melting point. Those that have the low melting poing are the most easily digestible. Crisco is a chemical fat and I am not sure whether it is good or not. It is made by treating various fats by chemical processes by which hydrogen is made to combine with the molecule of fat and so changes its consistency. Whether the food properties changes or not, I do not know. It is the hypothesis as yet as to whether it is good or not.

Q--Will hydrochloric acid taken half an hour after meals kill the germs in Yogurt?

A--Probably not. The germs by that time will have passed along.

Q--Can cheese, purchased in the stores, be rendered fit for use by sterilizing?

A--The cheese is not all fit to use unless it is cooked. Dr. Matthew Williams of England, many years ago, called attention to the importance of cooking cheese. The cooking will kill some of the germs but not all of them.

Q--What are the foods that brain workers should avoid on account of making them dull and stupid a few hours after eating?

A--Fats and meats are the most difficult of digestion, the slowest to digest in the stomach and the most likely to over tax the stomach and the most likely to produce intellectual dullness because they promote putrefaction of the colon and so encourage the formation of poisons which disturb the brain.

Q--What is the cause of enlarged liver and spleen?

A--Putrefaction in the colon. Autointoxication is the great cause of it.

Q--What treatment will give temporary relief to intense pain in persons suffering from neuritis?

A--Heat is the best thing. Hot fomentations are one of the very best things. A hot bag, a photophore is an excellent thing, better than the hot bag because the heat of the photophore will penetrate beneath the skin, get deep down to

the nerve trunks themselves. Best of all is diathermy or thermo penetration. This is the current used in wireless telegraphy which has been tamed so it can be used for medical purposes.By the application of this current the heat can be applied to the interior to any part we like and with great affect in relieving neuritis and other internal pain.

Q--What is indicated by a sharp pain in the right wrist?

A--Answer--I haven't the slightest idea. It may be a sprain, it may be rheumatism, it may be neurlagia, it may be a pin or a needle or something. I don't know. The case must be investigated. Perhaps it needs an X-ray examination.

Q--Can the following condition be cured and what effect will it have on future health? My four year old daughter has a heart beat of 44 to the minute. I

A--It is quite possible this child may have serious heart trouble or it may be an idiosyncrasy. The probablilty is, the child has 88 beats to the minute but every alternate beat is a light beat and is not felt by the finger. In most cases of this sort that I have investigated, the person had really double the number of beats he was thought to have. It is necessary to take the pulse with the sphygmograph which will write down the pulse so we can see exactly how the heart beats. The case ought to be investigated. Investigation of this case with the electrocardiograph would be an excellent idea.

Q--If the ileocecal valve has been found to be always shut and there is a great deal of suffering and tenderness around the gall bladder, can the patient be cured by leading a strict simple life without undergoing an operation?

A--This is a case in which the ileocecal valve is incompetent. This little valve I was talking to you about has got injured in some way so it is always opening and fecal matters find their way back into the intestine. I should have mentioned this as one of the causes of rheumatism. I have no doubt it is. Now in such a case, it simply becomes all the more important to adopt a dietary which will not encourage the growth of putrefactiva,organisms in the colon and encourage putrefaction because if there is putrefaction in the colon and the fecal matters are forced back into the small intestine here, the effect upon the body will be just as bad as though these putrefying fecal matters were added to the food and eaten,

swallowed with the food, because here is a part of the body where the food is digested and absorbed, here in the small intestine and it makes no difference in the fact whether this foul fecal matter gets into the small intestine from above or whether it comes in from below. You may say this is the dining room of the body, if you please and if the sewer breaks out from the kitchen into the dining room, it doesn't make any difference whether it comes in the front door or ~~xxxxxx~~ the back door of the dining room, for sewage is sewage, you see. It doesn't make any difference how it gets there.

Q--Can a condition resulting from distorted cecum caused by adhesions be remedied?

A--Yes, even these adhesions can be made to disappear. Fomentations and heating compresses and massage and especially the use of Colax and Para-lax will often give entire relief in these cases. Not always. In some cases the appendix is involved, Then there is so much pain and trouble it must be removed. I was operating upon a case of that sort just yesterday in which I found a great mass of adhesions all about the appendix which was grown clear up behind the cecum and we had to dissect it out and remove it.

Q--In what manner does lithia act upon the system and lower blood pressure?

A--Lithia acts upon the body through the mind. This so-called lithia water for example, Buffalo Lithia Water, ~~xx~~ it is a sort of ~~xxxxx~~ popular mind cure. There is no other way in which the effect of lithia can be explained. It was formerly supposed that lithia dissolved uric acid and made soluble salt of uric acid so that when a person took lithia it combined with uric acid and made it soluble so it can be easily removed from the body, but more recent investigations have shown that the combinations of lithia with uric acid are insoluble, so if lithia does anything at all to the uric acid, it simply renders it insoluble and more difficult to remove. But if you will take the trouble to examine the analysis of Buffalo Lithia Water or any other popular lithia water, look at the analysis and figure it out if you can for sometimes they are obcure so you cannot figure it out properly how much lithia there is in a gallon of water. You will see how nearly you come to taking a dose of lithia when you swallow a barrelful of water. I ~~am~~ made such a study of lithia water sometime ago. Some of the

socalled famous lithia water samples were brought here and agents begged us to make use of them and tried hard to get us to use their waters, so I set down and discussed the matter with them. I said, "How much lithia is there in your water". Answer, "Oh", the said, "It is very rich in lithia". I said, "Now then, gentlemen, this is the United States dispensatory. You have heard of that haven't you." "Yes", they said, "It is standard authority on the use of drugs and gives the doses of all drugs. Now we will open this up and see what is the dose of lithia". So we found the dose. Then we ascertained how much lithia was contained in their water and we found that a man could get about half a dose of lithia by swallowing a barrelful of this famous Buffalo lithia water.

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Question Box Lecture of March 10 cont. from Note Book Page 4544.

so you can readily see that statement is true of all lithia waters and there is not a single one of them that contains lithia enough in a whole gallon to be a quarter dose and if you got the dose it would not do any good even if it was a fulldose so there is not much to be said in favor of lithia. The only way to cure the conditions for which lithia is recommended is to stop doing the things that made those conditions. If a man is suffering from uric acid poisoning he should stop he should stop eating uric acid for one thing and stop producing uric acid in excess. He should change your conditions of life which are responsible for the uric acid. Uric acid is a cinder. Suppose you have got too many cinders coming out of your furnace what would you do? You would increase the draft in your furnace. You would improve the quality of your coal, wouldn't you? That is exactly what you must do with your body if you have got too much uric acid. Take more exercise to increase the draft of the body so it will burn up better the materials you are takinginto your body or else improve the qualtiy of your diet or do both. If one is eating beefsteak he is swallowing fourteen grains of uric acid with every pound of beefsteak. Just think of that. Here is a man who has got rheumatism, has uric acid, has hardening of the arteries and so on and he is afraid he is going to have Bright's disease and is eating beefsteak and is swallowing fourteen grains of uric acid every day that eats a pounds of beefsteak. A pound of beefsteak isn't very big after its cooked and many a man eats more than a pound of beefsteak in a day. Perhaps in order to be very careful of his diet he eats sweetbreads instead of beefsteak and then he gets seventy grains of uric acid to the pound because sweet breads have five times as much uric acid as beefsteak and mutton chops, and fresh fish, fowl, birds of various sorts have all essentialy the same proportion of uric acid. There is no particular difference. Flesh is flesh and the same kind of uric acid is found a proportionate amount of uric acid is found to the amount of solid material present so the thing for such a man to do if he has uric acid poisoning is to stop making

uric acid and stop eating uric acid.

Q. Are potatoes and eggs fattening?

A. Certainly they are. All foods are fattening. Potatoes are fattening. Bread is fattening. Beefsteak is fattening. Everything one can eat is fattening to a certain extent. The most fattening of all foods is however, is the fat containing food. Fat itself is the most fattening food. Fat is easily burned in the body. Fat is more likely to be deposited as fat to take the place of fat that has been consumed. Proten is only used for repair of the body. It is not food fuel and a portion that is not eaten for repair is passed on out of the body as waste matter but one should not discard potatoes because they are fattening. One can reduce his flesh on potatoes as well as on any other diet. One should not undertake to live on beefsteak in order to reduce fat. The only thing necessary to reduce your fat is is to exercise more and to eat less. It is not the kind of food you eat so much as it is the amount of food you eat. That is the one important thing. If your height calls for 2000 calories a day and you weigh 250 pounds you want to cut your calories down to 1200. Eat only 1200 calories. Then you will have to dine on yourself to a certain extent you see. That other 800 calories you will have to get off your own shoulders. A many who weighs 250 pounds when he ought to weigh but 125 pounds is carrying another man on his back. The only way in the world you can get rid of that man is to eat him up morsel by morsel and you wont eat him unless you are very hungry. You have got to be very hungry before you will be cannibal so in order to give yourself an appetite to eat that fellow that is riding on your back you have got to starve yourself down to the point where you can relish that kind of a diet. In other words, cut your rations in two in the middle. Then your hungry blood cells and future cells will lay whold of this extra residual tissue that has been heaped on in excess. Burn it up. Eat it up. Now you can increase the appetite for this residual tissue by exercise. The more hard work you do the more rapidly you can be broken down. I was looking the list over an hour or two ago and I see we have about 40 people in this house who have been invited to reduce their flesh very considerably, to reduce their weight from 275 pounds down to 175 pounds, all the way from 90 pounds too much up to 150 pounds

or even 200 pounds too much. One person I think weighs 250 pounds too much. We don't expect that people are going to reduce their weight 150 pounds or 100 pounds even. If you weigh twice as much as you ought to if you can reduce your weight one quarter you will be doing pretty well. If you weigh 260 pounds when you ought to weigh 160 pounds ,for instance, get your weight down to 180 pounds and be quite content if you can do that. You might stop yourself a little short of that, but you can be quite happy with 180. However, a man has to be a pretty large man to have a normal weight of 160 pounds. Very few people can have a normal weight of 160 pounds. You would have to be very large indeed, about 6 ft. 2in. tall to weigh 160 pounds normally. The majority of people weigh too much after 40 years of age. Dr. Rogers of the New York Life Insurance Company has shown most conclusively that people who are ten per cent over weight are much more likely to die prematurely than people who are ten per cent under weight. It is far better to be ten per cent under weight than to be fifteen or twenty per cent over weight. That fact was not known until it was pointed out by Dr. Rogers,the medical director of the New York Life Insurance Company and so when they find a man ten per cent over weight they charge him more for his insurance than if he was ten per cent under weight so if you are going to get examined for life insurance and get your weight down a little before you apply if you want to get a good rate. When you get it down keep it down by extra work by getting outdoors for a ten mile walk once a day.

Q. Where is the best climate for a couple of 60 year old persons affected with chronic throat trouble and nervousness possessing a small competency and desirous of leading a simple life?

A. I don't know if there is any ideal place on the face of the earth. Michigan is a pretty good place and taking everything into consideration I don't believe there is any country very much better than Michigan. The trouble with the warm climate is,it is too relaxing and too depressing. You are constantly surrounded/more or less with air impregnated with the products of putrefaction by air because germ growth is developing at all seasons of the year in these warm climates

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to take a portion of the lining membrane, the bursa and turn it into the joint. This can be done in such a way as to effect a radical cure.

Q. Shall I eat eggswhen I go home?

A. An egg now and then I suppose would not be the worst thing you can eat. Still if I were you I would not. I have found a great advantage in discarding eggs entirely from our dietary and I am sure it is a very great advantage. For some people eggs are really poison and ought to be discarded entirely. Other people seem to be able to tolerate them but the free use of eggs is not advised by anybody. I noticed recently a number of eminent authorities are forbidding the use of eggs for children. One eminent New York authority says that no child should be permitted to eat eggs until he is five years old for there is a poison in eggs. The tissues of every animal contains something which is poisonous to the tissues of another animal and sometimes even small doses of these poisons will produce a sensitized state of the body so that when that poison is taken in very minute doses it will produce profound effects. That is what is known as anathylaxis. Now one of themost important of these is hay fever. Another is sick headaches and there are many others of the same thing.

Q. What is the cause of hiccough?

A. It is a spasmodic action of the diaphragm.

Q. Is grape fruit or oranges detrimental to rheumatism?

A. Not at all. There is nothing so good as fruit and potatoes suffering from rheumatism.

Q. Would you say a man has not improved if he has not gained in weight or strength although feeling fine after being here for five weeks?

A. The thing is to look into your case and see just what the condition of the blood is and see what the condition of the secretionsis and look at your skin. I judge more by the condition of a persons skin than by any other one thing. If you have got a better skin your are better. If your skin is clearer, more active and your body has a more normal appearance and your tongue is cleaner, your breath issweeter, you are better no matter how you feel. You may have just as much

pain and numerous things and even less weight and yet you are certainly better. Your tissues have been undergoing a renovation that will ultimately result in great relief and perhaps complete relief from the symptoms from which you have been suffering.

Q. What is the name of the machine for respiration?

A. It is known as the Pulmotor. I will ask Dr. Roth to demonstrate it and tell you about it. We will have it brought down here. I am sure it will be of interest to you all to see it. We find it of very great use. When we perform surgical operations we always have the Pulmotor within two feet of the operating table so in case there is any occasion whatever for its use during the operation the Pulmotor can be applied instantly before any serious condition has arrived. We have once or twice found it very useful too but I do not know that it was really necessary but at any rate we took the precaution to use it and with most excellent effects. The Pulmotor is an instrument with which a mask is put over the face and the instrument makes the patient breathe. Oxygen is forced into the lungs and pumped out again just as though the person was breathing. Persons who have actually died and the heart ceased to beat the Pulmotor has started the activity of the heart and lungs again and life has been restored.

Q. A certain doctor has suggested that most human troubles are the result of standing up right, that the upright position is an abnormal position, that we are four legged animals like the rest of the quadrupeds and really ought to go on all fours to be really healthy and when we find ourselves sick it is because some of the internal organs have dropped out of place because of our upright position and we should get down on all fours and run about until we get into a normal condition again.

A. This theory is something of an exaggeration perhaps although the idea may be good. Too much of a good thing spoils it. Running about on all fours is a good exercise for the abdominal muscles, a splendid exercise but a still better exercise is to lie on an inclined plane with the head down and the hips and legs up. Then raise the legs and take deep breathing exercises. That is better than

running around on all fours. Take the ironing board. Put one end of it on a chair, lie down on it with your head on the floor and your feet in the chair and you are ready for theexercise. Raise the legs and take deep breaths. Go through the exercises you take on the Gymnasium floor. I am having a lot of these boards made for the Gymnasium so pretty soon you will be able to take the exercises there.

Q. You said sometime ago if anybody would come here and take the diet alone he ought to gain. I have been here a month and have not gained. What is the matter?

A. Come to see me and I will take the responsibility of seeing that you do gain. You must gain unless you are doing something that hinders you from gaining but you certainly will improve. Whever we take one step toward Nature Nature puts out her hand and gives us a lift.

Q. There is an old gentleman in this room tonight who says he was here and heard you preach here 45 years ago. He is anxious to know whether you are still preaching.

A. That is quite a mistake. I was never in Findlay, O. in my life and 45 years ago I was not preaching. I was in school studying,so it was somebody else and not myself who was preaching. Besides, I never do preach.

Q. What is the cause of stage fright?

A. I don't know. I never suffered from stage fright and I don't know just what it is like. I have been ~~frightened~~ threatened with the disease but never really got it. I thought I was going to have it but didn't quite.

Q. Are raw tomatoes good?

A. Yes. They are good for almost everybody who does not have ulcer of the stomach so that the use of the tomatoes givesyou pain. If they do not give you pain you need not be afraid to eat them.

Q. What causes sour stomach?

A. The principal cause is constipation. It is not that the food sours in the stomach or that starch ferments and sours and or that sugar ferments and sours.

Your stomach makes too much gastric juice. That is the cause of sour stomach. We used to suppose that it was fermentation but the laboratory report coming in year after year failed to show any such thing. There is no fermentation in the great majority of cases of sour stomach. It is only when the stomach is obstructed at the pylorus so that food accumulates in the stomach for hours and hours. In these cases we have yeasts present and fermentation, but those cases are really very rare. The ordinary sour stomach is due to too much hydrochloric acid in the gastric juice and the principal cause of that is putrefaction in the colon and the absorption of these poisons and their excretions into the stomach and/irritation of the stomach due to this cause. It is relieved by getting the bowels more active especially by the disuse of meat.

Q. If Dr. Friedman's cure should turn out to be a success how would it do for the Sanitarium to use the Annex for a tubercular hospital?

A. It is already occupied. We would not be able to use it for that purpose. If we went into the business we would have some other place for it but there would be no necessity for it because every state in the country and the U. S. Government and every town would be equipped for the treatment of this disease by this remedy if it is really what it claims to be. We ought to know inthecourse of a few weeks something more about it than we know now. I notice in one of our recent medical journals that Dr. Beard, one of the leading surgeons of Berlin who has been quoted as ~~indorsing~~------ this remedy has come out with a statement which we hope will be published to the world everywhere to the effect that he does not believe in this remedy, that it has offered no proof of its ~~efficacy~~-- and he does not himself indorse it. I am myself very skeptical but we are waiting to see the results of the investigations.

Q. Why are gripps germs so slow in elimination.

A. They are very tenacious, hang on very hard and are difficult to get rid of because it is one of the characteristics of this particular germ.

Q. Is there remedy for a bad attack of gas in the small intestine?

A. These bad attacks of gas in the small intestine are commonly due to an incompetent ileocecal valve. When the ileocecal valve is incompetent the gas cannot escape. When it closes then the intestine forces the gas down into the colon and the colon contracts and forces the gas out of the body and we get rid of it but sometimes it is forced back into the small intestine and the patient is not able to get rid of it. The remedy in that case is to repair the crippled ileocecal valve and that I am glad to say we are able to do. We are doing it almost every week.

Q. What do you think of cascade---- internal bathing?

A. Cascade internal bathing is a very ingenious money trap. It is no better method of introducing water into the intestine. It is less controlable and really less not so good as the ordinary old fashioned fountain syringe.

Q. Why does one get so cold when he tries to sleep with the windows open.

A. Because he not properly prepared for sleeping outofdoors. He must have be thoroughly protected. He must have the head, neck and shoulders perhaps wrapped up and the limbs must be thoroughly wrapped up and the body must be thoroughly warmed before you go to bed. You should never undertake to sleep in a cold bed. People who have very strong constitutions can warm up the bed but feeble persons should not try to do that. The proper thing to do is to have the bed in a warm room and have somebody open the windows for you after you have retired.

Q. What is the remedy for an attack of hiccough?

A. One good remedy is to take a deep breath. Study the hiccough first of all and see what its rythm is. If you find the hiccough comes once in seven seconds that is the rythm. If it is once in ten seconds that is the rythm. If it comes once in twenty seconds that is the rythm. When you find what the rythm is notice when you hiccough then wait a few seconds until it is about three or four

seconds before time for you to hiccough again. Then take a very deep breath as deep as you possibly can. Then take in just a little more and hold the breath. Look at your watch until the period has gone by five seconds and you have interrupted the paroxysm you see. You have broken up the rythm and if you do that twice or three times it will in the great majority of cases stop the hiccough entirely. Another good thing is to drink a little hot water. In cases of real bad hiccough the thing to do is to wash the stomach out. There is usually liquid in the stomach. I was called to the city once to see one of our leading citizens who was hiccoughing and had been doing so for 24 hours. They thought he was nearly dead and he really was. He had a high temperature and a fever and was really very sick. We passed a tube down into his stomach and took out a quart and a half of liquid and the hiccough ceased entirely. The next day he had a similar attack and another stomach washing relieved it again. We have had this experience scores of times in our institutional work her and we find it a very valuable means for relieving hiccough in bad cases. The application of an electrical current is very good. A strong electrical current applied to the diaphragm so strong as to cause it to contract, to make the diaphragm come right up under the ribs and make it contract hard and tight so that it cannot contract any more. That will sometimes relieve the paroxysms.

Q. How can you tell the difference between ulcer and cancer?

A. The only way is to remove the ulcer and examine it under the miscroscope.

Q. Are enlarged joints generally the result of gout?

A. No. They are generally the results of arthritis.

Q. If a man 77 years old has a blood pressure of 215 how long ought he to stay at the Sanitarium in order to get his blood pressure reduced?

A. I will tell you what I would be inclined to if I were 77 years old and had a blood pressure of 215. I would live at the Sanitarium unless I had some better place to live. I would just live at the Sanitarium. I would just make it my business to get my blood pressure down and I would work at it and make that

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the chief business of my life because that is the only way in which such a person can to any great extent lengthen his life. The high blood pressure has got to be reduced. One cannot live a great length of time with the blood pressure of 215. We never get anybody who gives themself a fair chance in this blood pressure question. Everybody thinks he ought to get that blood pressure down in three or four or five or six weeks. He doesn't give it time enough. That is the most ridiculous thing in the world my friends. High blood pressure is one of the greatest enemies that possibly can attack you. It is old father time right at your heels with his scythe and the thing for you to do is to make it the most serious thing of your life to get that blood pressure down. Now if you can stay two or three or four months at the Sanitarium and get it down to 150 or 160 and it is quite possible you can if the arteries are not chalky yet. Then after you go home follow it up and run back here once in a while to be looked over and keep the blood pressure down. That would be doing the right thing. I met a ~~select~~ gentleman who was here a couple of years ago and his blood pressure was 160.

V-M

He said, "Oh, that isn't very bad. I will go home and I think I can live this way very much at home. He went home. He came back here the other day with his blood pressure 225 and we are having an awfully hard time to get it down. That man has thrown away two years of precious time. When he found his blood pressure was 150 then was the time to get right at it and fight it. Suppose a man finds his house is a fire and he says, "Now I am busy just now but to-morrow or next day I will do something to stop that fire. I will get some boys here and some sprinkling pumps and we will sprinkle some water on that fire to see if we can't keep it under control". He wouldn't do any such thing. He would get right after the fire department and if it was not efficient enough he would send to the next town to get another fire department and get all the water pouring on that fire he could to get the fire out. High blood pressure means your house is a fire and you have got to fight it as you would fight a fire in your dwelling house. I am not talking half as earnestly as I ought to on that question. I cannot make anybody appreciate it as I ought to. I don't want to scare people to death, at the same time, I wish I could get people to wake up and understand what it means to have the blood pressure going up and up. When the blood pressure once starts ~~and~~ going up it keeps right on going unless you fight it down. It will never come down of itself, but will keep right on going up. By and by when it gets up to the top it will began to come down again and then you cannot do much anyhow because your heart is worn out and your chance is gone.

Q--Why do the Sanitarium helpers look so strong and healthy?

A--Because they live by the Sanitarium methods almost entirely.

Q--Is facial massage injurious?

A--No. It is sometimes foolish.

Q--Is there any cure for dandruff and falling of the hair and what remedies are considered best for the prevention of the same?

A--Yes the cure consists in making the scalp as healthy as you can. Shampoing the scalp with cold water, exposing it to the air and light and the application

of some sort of remedy like ten grains of resorcin and one drop of caster oil in an ounce of alcohol. This makes a very good lotion for the scalp.

Q--Was king Nebuchadnezzar at any time a vegetarian?

A--It is reported that for seven years he lived on a vegetarian diet and after that he seemed to be much wiser than he was before he. He did a great many good things he had forgotten about before. His vacation in the country seemed to have done him a whole lot of good. I think Neburhadnezzar had neurasthenia. I think the country air and diet cured him by changing his flora.

Q--Somebody says your pattiality to the monkey leads many friends to be curious to know ~~xx~~ you are an evolutionist.

A--Most certainly I am an evolutionist,--that is, I believe in practical evolution. Now I don't mean to say ~~that~~ I believe that the human race is evolved ~~xxxxxx~~ from a monkey. The question is, now a days, I notice, the latest idea advanced is that part of the human race were evolved from the orangoutang and another part from the chimpanzee because they have found two types of men. One that had high eye brown like the champanzee and the other that did not have high brows like the orangoutang in that regard. So the question is not whether he came from a monkey but whether he came from ~~twoxxxxxxxx~~ monkies or from one. I think that is entirely beyond us. The fact of evolution we must recognize. But the facts of evolution and the theories and ~~xxx~~ hypothesis of evolution are two entirely different things. As regards the theories and philosophy of evolution there is great disagreement among scientists themselves. The facts of evolution we must recognize. We see it going on everywhere all the while, but just how or when it began, nobody knows. One hypothesis is just about as good as another.

Q--What is the best treatment for high blood pressure?

A--Live a simple life. There is a little book entitled, "The Simple Life in a Nutshell". Get that little book and read it. Stick right to it and follow it out. That is the best thing in general. The next thing is warm baths, radium, diathermy, all the things that are being done here at the Sanitarium in cases

of this sort are found very useful. Diathermy sometimes reduces high blood pressure 25 or 30 points in 15 minutes. The next day it will be up ~~xxxtxx~~ again but not quite so high. The next day it will get a little lower and the next day it will be not quite so high and so it keeps on working down by steps.

Q--Is there any connection between hardening of the arteries and angina pectoris?

A--No? Angina pectoris is due to spasmotic contraction of the arteries of the heart or hardening of the arteries of the heart.

Q--How can a person tell if he has hyperacidity?

A--By taking a test meal and havingit analyzed.

Q--You say sterilized milk will not make hard curds. Will it recover that power by standing and is it harmful when used?

A--No it will not form large hard curds, but the sterilized milk is not so wholesome as unsterilized milk. On that account one should use certified milk instead of sterilized milk but I thank you for your great patinnts.

Good Night.

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March 12, 1913.

Dietetics for Nurses.

Lecture to the Nurses Class at the Sanitarium Chapel, Tuesday; March 11, 1913.

at 3:00 P. M.

by

J. H. Kellogg, M. D.

Feeding in fevers.

We must remember first of all in feves there is lowered vital resistance and the cause of this lowered vital resistance is, that the body is not able to hold at bay its germ enemies so well as under ordinary circumstances so in the treatment of a fever we must do everything possible not only to raise the vital resistance of the patient but to economize his vital resistance and to defend ~~him~~just as far as you possibly can against the attack of invading germs. One of the sources of the germs that do mischief in fever is the mouth. There are always two kinds of germs making trouble in such a patient, in such a fever. For instance, as typhoid fever there are two kinds of germs in most fevers, two kinds of germs making trouble and causing a fever so there are two sources of fever. One source is the specific germ as the typhoid germ or the diptheria germ or the scarlet fever germ or the smallpox germ, some specific germ. The other is the ordinary flora of the intestine, the intestinal flora. The flora is the term that biologists apply to germs in general that are found in the intestine so we must combat both of these germs and we must consider both of them in our treatment. The first thing to be thought of in reference to the feeding of a fever patient is keeping the mouth clean. Why? Becuase the mouth is the place where germs grow. It is the cavity exposed to the air. Germs are constantly being taken into the mouth and they find in the mouth the warmth and moisture favorable to the conditions of growth so we must take good care of the mouth. If you have nursed a fever patient you have certainly noticed if the

fever patient lies with the mouth open the tongue is pretty soon covered with a brown coat. This is because the germs and moths and yeast and various other things have taken up their abode there and have been making rapid growth in the mouth upon the tongue. We must prevent that by taking great care to keep the mouth clean because germs require food. They have vegetable organisms and they must have soil in which to grow so if you keep your mouth perfectly clean therewill be no soil there for the germs to grow in. Living tissue is not good food for germs. Very few germs have the power to attack living tissues. Theymust be something dead. They can grow in the saliva and fragments of food left in the mouth and the mucous which may be left in the mouth so there must be great pains taken to keep the mouth free from impubities, absolutely clean and to render the mouth inhospitable to germs. In the first place we will thoroughly cleanse the mouth with a brush or better with a swab. It is better to use a little cheesecloth swab. There is nothing better for a swab than the finger. It is better not to infect your finger but it is very convenient especially in children to use the fingers covered with a little cheesecloth. The best thing of all perhaps would be something like a lead pencil or a splinter of wood with cheesecloth wrapped around it and fastened carefully so it won't get lost in the mouth, rather loosely fastened however, and applied to the mouth and it is to be used for thoroughly cleansing the mouth. It is better than a brush because the bristles of a brush may tear the soft tissues and increase infection. It is easy to cause ulceration under these conditions. Now there are certain substances which while they do not kill germs are capable of preventing germs from growing. That is why benzoate of soda is so largely used in the preservation of foods. It is because there are certain substances that prevent the growth of germs although they are not germicides. A very small amount of benzoate of soda will prevent germs from growing but it will not kill germs. There are certain other substances which have this same property. One of the very best, perhaps the very best of these substances are the essential oils such as oil of cinnamon, oil of wintergreen, oil of peppermint or oil of pennyroyal and menthol. These oils are very valuable

as a means of preventing the growth of bacteria in the mouth and are used under various conditions. One of the best for use for this purpose is a little cinnamon water. This is very excellent. It has a flavor that is not usually objectionable to the patient and a little cinnamon or wintergreen water may be used. Cinnamon is best and wintergreen is next best. A remedy which is used a great deal is sold in the drug stores as listerine but ordinary cinnamon water is in every way as good as listerine. You can make cinnamon water yourself very easily by putting half teaspoonful of cinnamon oil in a bottle with a tablespoonful of oxide of magnesia or calcined magnesia. Put these in a little water, then shake it up very thoroughly and then fill it up with water enough to make a quart. Now the magnesia will settle to the bottom and you will have the cinnamon diffused through the water. You can prepare your cinnamon water in this way if you like, or it is possible even to break a few drops of cinnamon in a glass of water. Get a little cinnamon essence which is one part cinnamon oil and nine parts alcohol. Half a teaspoonful of this in a glass of water stood up carefully so there is no danger that the oil will separate and burn the lips of the patient is very good but the cinnamon water preparation is better. Wash the mouth thoroughly and swab it out with cinnamon oil before every meal and then it would be a good plan to moisten the mouth and wash it out with a little cinnamon water every hour so as to keep the germs from growing and to keep the mouth sweet and clean and prevent formation of sores on the tongue and lips. Use a quart of water to a half teaspoonful of cinnamon oil. Perhaps it is better to get the cinnamon essence and use two drams of cinnamon essence to a quart of water as it is much less trouble to prepare in this way. One quarter of an ounce of essence of cinnamon to a table-spoonful of calcined magnesia in a bottle with a quart of water. Shake it very thoroughly. Add a small quantity of water first and shake it thoroughly and then add the rest of the water afterwards. Now we will consider the feeding of fevers taking typhoid fever for example as a typical case of fever for it represents

practically all of the fevers as the conditions are so varied and so serious that if you can treat a typhoid fever patient successfully you can treat any fever patient I am sure. There are several conditions which it is very important to have well in mind which must control the feeding of the fever patient and I will give you a list of these things. First of all is water to remove the toxines, second, emaciation characteristic of fevers due to increased metabolism, the result of the influence of toxines and loss of appetite, third, on account of the tendency of tension of chloride in the tissues, salt as far as possible should be eliminated from the bill-of-fare. Fourth, loss of body salts should be made up by the use of fresh vegetables and whole grain preparations. Fifth, the liver and kidneys are compelled to do an enormous amount of over work in fever in the destruction and elmination of poisons produced by the fever. On this account the greatest care must be taken to avoid adding burdens to these overworked organs and to lessen their work as much as possible by supplying an abundance of water and by withholding from the patient anything that is likely to increase the work of these organs. Sixth, because of the special tendency to intestinal putrefaction in cases of fever, all foods which have a tendency to putrify must be prohibited. That is the reason why not only meats of all kinds must be discarded but eggs and even in many cases milk. These are the principal conditions to be considered in fever. First, the patient needs an extra supply of water. Why? We all need water to carry off the waste materials of the body. The body is a furnace. Food is fuel. The body is the furnace and the food is the fuel to feeds the furnace. You know when fuel is burning in a stove there are two kinds of residues, the smoke or gaseous residues and the ashes. The smoke goes up out of the chimney and disappears but the ashes are left behind. It is exactly so in the body. Food is fuel and in the burning in the body of the food there are two kinds of residues, gaseous residues and solid residues. The carbon dioxide gas goes all through the lungs and escapes but the solids, the ashes are left behind in the body. Sometimes these solids are not perfectly burned. Then the ashes are not soluble and some of them are left behind in the tissues. Uric acid

is a sinder. That is just what uric acid is but the most of these materials are soluble. Wood ashes are soluble We add water to them and get lye. The urine issimply the lye. It is the dissolved ashes of the body and so is the perspiration that passes out through the skin and a large amount of material goes out through the intestines and through the bowels. This represents ashes or solids in solution. We have to have water to carry these off. (I was impressed with this thought very much when I was visiting Jerusalem a great many years ago and found that under the main alter where they used to burn thousands and thousands of animals there was a viaduct or provision made to catch all the ashes and portions of burned animals that came down and they were carried away by a stream of water way off to some place on a mountain side a mile or more away from the city and distributed on the side of the mountain and the water carried off the material and carried it away you see.)(It is exactly so with the body. There is a great fire burning in our bodies and we require water continually to carry off the ashes and the fever patient needs more water than the ordinary man.) Why? For two reasons. First, because there is more active breaking down of the body. The fire is burning more brighly,if you please. There is a more intense flame, a more intense burning. The body itself is being consumed with fever as well as the food the patient is taking and consequently there is a large amount of ashes. This is particularly true of poisons carried off by the kidneys. There is a large amount of urea instead of being ten or twelve grams as it is normally, will rise up to perhaps to 40 grams or even more, three or four times as much as the ordinary amount so we need a large amount of water to carry off this increased amount of poison but besides this and the fever the body is laboring under the influence of specific toxines. They are germs that are caused through these poisons and it is the poisons caused by these germs that make the fever and the symptoms of the fever. The pains, the delirium, the distress, the heat, the chill and all most all the symptoms the patient suffers from in fever are due to poisons or toxines produced by the germ itself which is the real cause of the fever and now we need

water to dissolve those poisons and to carry them off. We need an increased amount of water. It is very important to recognize this fact. The most important thing of all first, for the fever patient is water. How much water should the fever patient have. Such a patient should have an average of at least six ounces of water or 144 ounces in a day. That would be nine pints and thatwould be a gallon and a pint you see. This is about right. It wouldn't do any harm to increase that amount of water if you can get the patient to take it. If you can get the patient to take half more than that or ten or twelve ounces an hour it is all the better. The patient must be made to take in just as much water as he can. Now how are you goint to know whether the patient is taking any water or not. How are you going to prove it. You must measure the urine and so in every fever patient never forget that the urine must be carefully gathered and measured. If you give the patient a gllon of water you ought to get back about three quarts of urine or about three-fourths as much urine as water the patient has taken in. If you give a patient a gallon of water you should get back three quarts of urine. I had a patient sometime ago twho had typhoid fever or para-typhoid fever, a very serious case and I began flushing the patient with water and I was told the patient had six quarts of water and how much urine. There was almost no urine at all. The patient had less than a pint of urine. That showed that the patient did not get the water. That is all there was to it. When I questionedmthe fact to the doctor who was attending the case said,impossible but I said, "Where is the water". The doctor has the right to make the demand of the nurse to measure the urine. You have got to produce the proof in the urine tat you have given the patient that amount of water. If you don't get the flow of urine to measure with the amount of water you gave the patient you may make your mind there is some mistake about it; the patient is not getting the water. It is also important to remember that the fever patient is not throwing off water from the skin. The typhoid fever patient does not sweat. If is is malaria fever he does sweat but if it is malaria fever the patient may need still more water because he wants to dilute the urine to protect the kidneys against the influence of these toxines which are passing off through the

kidneys so if the patient is sweating profusely all the while you must given even more water so as to prevent concentration of the urine and injury to kidneys. If you have a case of typhoid fever or any other fever and the patient pretty soon develops kidney symptoms, albumin in the urine or casts in the urine indicating an acute nephritis your conscience ought to smack you hard because it means you have not done your duty. The patient will not have these troubles with the kidney if the urine is properly diluted and is taken out of the body so rapidly that it has no chance to do any harm to the kidneys. Now will you remember that thing? If you have a typhoid fever patient and you find he is developing kidney trouble you may know that it is probably your own fault. If you have had exclusive charge of the case and have had any chance to carry out what you know ought to be done for the patient to have that damage to his kidneys and it is a life long damage to him. It is worse than to have lost a leg or an arm or two legs because it means the cutting off of that patient's life. Years and years have been taken right off his life. A person who has such an attack of kidney trouble cannot live to be 70 or 80 years old. It is impossible because when the ---------- changes begin which introduce old age they will progress so rapidly they will carry him off very quickly. Now how are you going to get the patient to take the water? Give the patient at least six ounces of water every hour on an average. But suppose the patient won't take it every hour, then what? Then we will give the water patient by enema. Now that may be taken in two ways, by what is known as the drop method or by the other method, retaining enemas or by divided doses. You may give the patient a half pint of water to be retained. If the patients rejects give it again immediately. If the patient rejects it the second time ignore it again but the patient each time will retain some of the water ---------- and you will want to make sure you will get a full dose and generally, if you are a little careful after the he second or third introduction of the water it will be retained. It is important

that the temperature of the water should be just that of the body. You may give the patient an enema to empty the bowels. Then begin this process of infusing the water. I want to call your attention to a simple devi ce I have here, a little boiler with a faucet and some lamps under the boiler. The purpose of the lamps is to keep the boiler warm. There are three lamps. It doesn't require more than one I am sure. You once fill up the boiler and it will continue to operate. Here is a little faucet arrangedwith a little steel and a powder so you can fix it for one drop a second or two drops a second or any amount you want you see. This is dropping now just one drop a second. It ought to be arranged so that patients perhaps one drop every two seconds. The lamp can be trusted to keep up the temperature. You would have to have the temperature a little higher in the tank than the blood because it cools off some in passing down the tube. When the water is introduced at this rate, at the rate of one drop a second it would be sixteen ounce in one hour. That is more than you need. Pretty nearly sixteen ounces so one drop every two seconds will give you practically a half pint an hour so if you will fix your apparatus then to give a drop every two seconds that will give you the amount of water you want the patient to absorb so that can be arranged very easily so the patient will be absorbing water when he is sound asleep. It is important to give this matter thorough, constant attention. It should be looked upon as chief anchor of the treatment, (the most important thing you can do for your fever patient it is to give him this flushing of tissues with water. You might starve your patient for a week or two weeks and it would not do him one tenth the part of harm and injury it will do him to allow him to go 24 hours without frequent flushing. In that 24 hours the concentration of poison in his body may be sufficient to set up nephritis or liver mischief or brain mischief or some other serious trouble that might easily steal against him. The patient has only a certain amount of tissue stored up that he can use. We must remember too that the skin is dry and doing nothing in most fevers and the tendency of the tissues is to hold water, to absorb water and to hold it instead of passing it off as it ought. So you must pour in a large quantity of water to force the body to

elminate the poisons. Then the question arises, shall we use plain water or salt water? The booksshows a normal saline solution but the books are mistaken about it. I will tell you why I say the books are mistaken about it. In fever almost without exception I don't know of any exception there is a tendency of the body to retain salt, to keep more salt in the body than is wanted. Now this disturbance of theheart is caused by indigestion. The heart and the stomach are controlled by the same nerves so when things are going wrong in the stomach the heart is very likely to be disturbed because of the intimate association.

v-m.

In pneumonia the salt entirely disappears from the urine. One of the symptoms of pneumonia is the disappearance of salt from the urine. Why? because it is retained in the tissues. The same thing is true in typhoid fever and all other fevers. The tendency of the tissues is to retain salt. That is the part of the mischief and the damage done by the disease. That is why the tissues retain the water. That is one of the reasons why the metabolism and cell changes of the body are disturbed. It is because of the salt which is being retained in excessive amount and so we must find some way to eliminate it and we certainly ought to do nothing to encourage it. There is another reason and this is a very practical reason and you will all see it right away. When you have a dish of strawberries and put some sugar on the strawberries or some syrup on the strawberries, what happens? They shrivel up, don't they? The juices come out of the strawberries into the water rather than increasing the size of the strawberries. That is exactly what you are doing when you put a normal saline solution into the colon. The action is always toward the denser liquid and consequently if you want to get water into the body, you must put in pure water instead of salt water and the tendency will be for the pure water to pass into the tissues instead of for the water of the tissues to pass out into the intestine. The reason why all the recommend salt water, they used to but they are getting over it now. I never recommended it for the reason I have given you. There is another reason and that is that the kidneys are crippled in fever and not able to eliminate salt as they ought to, so we may be harmed by pouring in so much salt. We come now to the question of solid foods. Two kinds of foods are needed by the fever patient, liquid food,--that is water,--and solids and we are ready to talk about solids, a most interesting subject, but our time is up. We can get over the subject very rapidly but I want you to know the thing w were talking about so you won't forget it for I am thinking all the time of that poor sick man lying on the bed and you standing there and he looking up at you with hope, faith, confidence and trusting you to carry him through that awful

sickness. That is what I am thinking about all the time and it worries me if I think a single one of you are going to lose a single point because every one of these points are so important. It is a proper thing to encourage the patient to take water by the use of juices of all sorts and flavoring water, such as lemonade, orange and fruit juices of all kinds, raspberries, pears, pear juice, anything else of that sort, but be careful and don't give him too concentrated solutions. Make them quite dilute solutions. Don't make the lemonade very rich with lemon so you will have to add a lot of sugar. A faint trace of the flavor is better. The patient gets tired of the strong solutions when weaker flavors would please him much better. The blood will take out only so much water and won't take up any more than a certain amount, yet preserves all the time its specific gravity and if you take some up it immediately passes it out. That is the reason why drinking water stimulates the kidneys, because the body won't tolerate the water. That is why water is diuretic. Now, first of all, I will tell you what not to feed your fever patients. You must feed the patient because he is undergoing emaciation. The patient is losing about 35 calories for every kilogram of his weight, he is losing about 2,000 calories a day and that is the rate at which he loses. If we do not feed him he consumes himself and when he consumes himself he is living on the very worst kind of diet. There is nothing so bad as cannibalism. When a man is knawing his own bones he is living on the worst kind of diet and that is what the fever patient is doing. He is burning fuel and if you do not give him food then he is going to eat off his own bones and when the body eats itself the result is, residues formed, poisonous residues which are responsible for much of the mischief that develops in fevers. Consequently it is very important for the patient to be fed fat. The patient will lose weight at the rate of a pound a day. Not always at that rate because sometimes the salt and the water will be retained but on an average he will loose at the rate of about a pound a day and consequently it is necessary for us to see that proper food is taken to prevent this emaciation, so we must give his solids, but we will continue this next time.

v-p

Dietetics for Nurses.

Feeding in Fevers No. 2.

Lecture to the Sanitarium and Hospital Training School for Nurses at the Sanitarium Chapel, Thursday, March 13, 1913 at 3 p. m.

by

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We will consider to day the question of emaciation. What is the cause of emaciation?in fever patients? The first cause of emaciation is the increased metabolism. What is metabolism? It is tissue activity. There are three kinds. There is the building of tissue and the restoring of tissue and the breaking down of tissue. The storing up of tissue is anabolism and the breaking down of tissue is katabolism. This katabolism is stimulated in fever. There is too much tearing down, too much of the tearing down metabolism, too much cell destruction and why is there too much cell destruction. It is the stimulating effects of the toxines produced by the fever. The typho toxines produced by the typhoid fever germ and the poisons produced by the intestinal bacteria which are growing with increased luxuriance in typhoid fever. These poisons excite the cells and cause the cells to break down too rapidly. They stimulate the size of the body so that combustion is taking place too fast and the body is burned up rapidly. There is another point of very great interest that you should know in connection with this and you should never forget it. That the higher the patient's temperature the more rapidly this cell destruction takes place and the higher a temperature the greater the amount of nitrogenous metabolism. The muscles and the blood, the living tissues contain nitrogen. They are the nitrogenized tissues. The fat, of course, contains hydrogen and carbon, but the living tissues of the body, the muscles, the brain, heart, blood and the other living tissues of the body are nitrogenized tissues. These nitrogenized tissues burn up much more rapidly when the temperature is high than when it is low, so that is the reason why a patient who has had a very high temperature for a long time, who has had a long run of fever with very high temperature,--some of you know that such patients are very slow getting up.

Sometimes they are months and months recovering because their muscles have wasted away and their hart has become small and their lungs and brain and nerve tissues, glands, liver, kidneys and every organ of the body has been undergoing destruction. It has been as though there had been a hurricane or a tornado through a town and things are all torn up and there is great devastation, so it takes months and months for repair. Now you see then, there is something for the nurse to do in keeping that temperature down. A high temperature of 103 or 104 for just two days is enough to give a patient weeks and weeks and weeks of increased convalesence, so we must fight fever as we would fight fire, you see, because it is a consuming fire. The patient is being destroyed by it and we must fight it earnestly and conscientiously. It is simple to say, "Well now I have carried out the doctor's prescription" is not enough. You want to just get after the doctor if the patient's temperature is getting high, If it is 103 tonight and tomorrow morning 102 1/2 by 10 o'clock in the morning 103, in the middle of the afternoon 104,the next day the same still, you want to get after the doctor tremendously and see that he does something to get the temperature down. Say, "Here doctor this patient will die if we don't do something." The next thing will be ulceration. The temperature is soo high and tissue destruction goes on so ~~rapidly~~ fast that the patient is likely to have ulceration or fatty degeneration of the liver or acute nephritis or pneumonia or some other serious complications if we do not get that patient's temperature down. I am talking about typhoid fever but the same thing is true to some extent in other fevers, although in pneumonia the temperature goes high for a short time, then falls quickly. The typhoid fever is a long drawn out fever which is a matter of very great consequence. When you have a temperature of 105, things are getting terribly serious because the body is being consumed so very very fast. So it is of great importance to control the temperature. The patient becomes emaciated because of this very high temperature, Then we can control the emaciation by lowering the temperature.

There is another important thing to do for the fever patient before we

attack the temperature. That is,—absolute rest. We must give the fever patient absolute rest and it must be rest of mind as well as the body. In order to rest well, we must have the right kind of bed; There must be a right kind of mattrass; It must not be too soft or too hard. If it is too soft the patient body will sink into it and be over heated and it will retain the heat and if it is too hard it will be uncomfortable and make the patient restless so he will roll about and that will raise the temperature, so it is very important that the bed and the mattrass should be right and comfortable and it is necessary to keep the temperature of the room down. If the temperature of the room gets above 60 degrees, the temperature of the patient will rise. The room temperature should always be kept down to 60 if it is possible thing to do it. It is very important to keep the temperature down. When it is possible to do so, it is better to keep it down to 50 if you can. The cool air helps very much in keeping the temperature of the patient down. Now what has this got to do with feeding? I have made these remarks to impress upon your mind the importance of combating emaciation and especially of combating the loss or muscles and brain tissue which comes when the temperature is high.

There are certain food substances which stimulate metabolism; there are certain substances which excite cell destruction to a degree, greater than the energy which they supply,--that is, there are some foods that cost more than they come to, you see. Just a little illustration of that: Suppose you have a chance to buy an elephant cheap, for $100.00 we will say. Would it be a good investment? No, because the elephant would eat so much unless he were particularly fortunately located in the show business that elephant would eat so much it would cost too much to keep him and you would very soon lose your hundred dollars and a good deal more. It would not pay to own an elephant. He would eat you out of a house and home. Now that is exactly what certain food substances are. They cost more than they come to. If you eat one hundred calories of certain kinds of food, in order to digest that food it would cost you 40% of all the energy that is in it and then after you have digested it and taken it into your body, it will stimulate yourself so as to make them throw off so much energy

that ym the actual balance will be against the food. You have lost more than you have gained. When one eats 100 calories of meat, the result of that 100 calories is the loss of more than 125 calories of body tissue, so you have gained nothing. That is the reason why carniverous animals are always lean. That is the reason why no animal in the world could live on a lean meat diet. There is no animal, either man or any other kind of animal that can live on a meat diet, that is on lean meat. If there is some fat along with the meat, a sufficient amount of fat with it, then it is possible to live on it, but on a strictly lean meat diet,--that is on a nitrogenous diet,—no animal can live, it dies. Why? because the nitrogenous food causes his body to burn up faster than it is replenished. If a lady was buying eggs at 11¢ a dozen and selling them for 10¢ as the story goes, somebody asked her how she could afford to do that. She said, because she was doing a large business. Now if you are buying eggs at 11¢ a dozen and selling them for 10¢ a dozen you are not making any money; you are getting one cent a dozen behind all the time. That is exactly what protein does. You are using more energy than you gain. Protein stimulates the cells to overactivity. Now how do you know that? Why do I know that? I don't know it at all of my own knowledge or my own ~~experience~~ experiment. I know from clinical observation and observation that has been common to the medical profession for centuries, that a meat diet always raises the patient's temperature. Give a patient meat and it raises the temperature and increases the fever. Meat is heating, that is the idea, that is what the leity say about it, it is heating and you must not feed a fever patient moat, because meat is heating. So it really is, that is a very interesting thing that this observation has been made by the common people for ages who knew nothing about scientific facts and by common practitioners who had no scientific training but they have known it for centuries and certuries. But within the last few years, Dr. Lusk of New York and von Noorden of Vienna have studied this question and have proven that the calorimeter, that the effect of meat is to stimulate the output of energy. Up stairs in room 101, we have a little apparatus called the respiration apparatus. I want you all to see it.

You should all be examined and tested with it so your respiratory quotient can be determined. This instrument was invented by Dr. Benedict of the Carnegie Nutrition Laboratory of Boston and it is used there is the study of foods and their various morbid conditions. This instrument which studies metabolism and measures metabolism with just the same accuracy with which a thermometer measures the temperature, is a very precious instrument. Heretofore, it has been necessary to shut such people up in a big iron box. They had a big iron box at the laboratory about six feet long and six or seven feet high and four feet wide. I was shut up in that box myself for ten hours and hermitically sealed up with sealing wax. They do this so that the subject is absolutely bottled up as tight as a bottle with a cork in it. You breath the same air over and over again but they pump it around to purify it so you can live all right. This reppiration apparatus we have here does just the same thing as that does only it is less complicated. It is a means by which the subject of metabolism can be studeid with the same accuracy and it is a wonderfully interesting device. If a man goes up here and is tested with this reppiration apparatus and we find his quotient is, perhaps, 75. Now if he eats some meat, that meat will cause an increase of his quotient up to, perhaps, 82 or more possibly and if we watch that man and keep testing him until his quotient gets down to 75 again by noticing how much oxygen he has thrown out, how much CO_2 he is throwing out, we can see how much energy caused that 100 calories of meat have him to expend, don't you see. The oxygen is measured and the CO_2 is measured and that is the way we get this quotient. Now by measuring the CO_2 we can see exactly how much energy that man has been caused to expend by taking this 100 calories of meat and it is found the man expends about 25% more energy when that is done that the meat itself is capable of producing. For 100 calories of meat he expends 125 calories of energy, so you see we have the ability to make good the statements I am making to you. They are simply scientific facts. I never think of presenting to you here anything that is not on absolutely scientific facts, but I am willing to state anywhere before the ablest scientists of the world because the thing that is not true is going to be knocked down sometime and I expect what I state to you, you will be repeating

it somewhere and somebody will take you up, so I am anxious in every case to give you the reasons just as far as possible so you will be able to back up your statements and sustain your position when you take one. So there is a very good reason why nitrogenous foods are not good for fever patients, because they increase metabolism stimulate cell destruction and are so-called heating foods and we want to avoid that, but when can we give our patient then. If not nitrogenous foods, what can we give them? The patient is making heat isn't he? Now what is the thing we burn in the stove to make heat? It is fuel, coal is one thing. What is coal? It is a hydrocarbon, hydrogen and carbon; they both burn, the carbon becomes carbon dioxide or CO2. That means one atom of carbon and two atoms of oxygen. How do you spell water chemically? H_2 O, two atoms of hydrogen and one atom of oxygen. In the case of carbon it is one or carbon and two of oxygen. In the case of water it is two of hydrogen and one of oxygen. Suppose then a substance is composed of hydrogen and carbon, these two substances carbon and hydrogen. When that is burned in the body what would you expect to get? The carbon combines with the oxygen and makes carbon dioxid. It is not carbonic acid unless it is combined with it. What becomes of the hydrogen? That combines with the oxygen and makes water and that is H_2O. Well now we get heat when coal burns and carbon and hydrogen burns we make carbon dioxid and water and we get heat. If the body is producing heat and there is a loss of heat going on all the time as in the case of fever, what would likely be good fuel for maintaining that heat? Carbohydrate,--that is carbon or carbon and hydrogen compound. What is the great class of carbohydrates we have in our food? It is starchgs. All the starches are carbohydrates and all the sugars and all the vegetable acids, those are the principal hydrates. How many important carbohydrate are there then? These three we have named, starch, sugar and vegetable acids. There is another substance that comes in between starch and sugar,--that is dextrin which is also a carbohydrate. There are two or three more but we do not need to pay any attention to them/ Citric acid of lemons, there is one of the vegetable acids, the melic acid from apples and tartaric acid from grapes. There are other vegetable acids, citric acid, melic acid and tartaric acid are found

more or less mixed up thgether in nearly all fruits. In citric fruits, in sour oranger and lemons and grape fruit it is almost pure citric acid. In the grape it is almost pure tartaric acid. In the apple it is nearly pure melic but in almost all the other fruits, in cranberries we have citric acid, the tomato has citric acid, chiefly but with a little melic acid mixed with it. These acids differ somewhat but are essentially the same and are all foods. They are carbohydrates and are burned in the body just as the same as starch is burned and the sugar is burned. There are several different kinds of sugar. Cane sugar is the most common. Beet sugar is cane sugar also. They are just the same thingsessentially. Then we have grape sugar. Where does grape sugar come from? It comes from corn syrup. The sugar of grapes or raisins is entirely different. We must not confound the two. The so-called corn syrup of dextrose or so called grape sugar is made by putting starch with sulphoric acid. It is a chemical process and cannot be recommended as food. Another sugar is Malt Sugar and that is most important of all. Why? because the sugar is ade from the starch in our mouths. The process of digestion converts the starch into sugar, that is malt sugar. When you chew starchy foods of any kind, potatoes bread or any kind of cereals, masticate it until it becomes digested, that becomes malt sugar so malt sugar is a natural sugar. Then there is another kind of sugar we ought to know about,---that is milk sugar, lactose or milk sugar. Then we have cane sugar, grape sugar, milk sugar and malt sugar. Now the sugars which are most useful for the body are the fruit sugars found in the sweet fruits and malt sugar which is produced by the action of saliva upon starch and by the action of the pancreatic juice upon the starch in the process of digestion. In the conversion of starch it is converted into sugar. The most important foods for fever patients consist of these carbohydrates. Why not hydrocarbon? Fat contains carbon and hydrogen while the carbohydrates contain carbon, hydrogen and oxygen and the oxygen and the hydrogen are together in the proportion to form water, six atoms of carbon and five molecules of water make the starch molecule. When this burned the water simply drops off and the carbon is burned and you get nothing but carbon dioxid, but in the case of fat we have both the hydrogen and

carbon burning and water formed and carbon dioxid. Fats are not the best thing for fever patients. The fever patient cannot take a large amount of fat, but he can take a large amount of carbohydrate. There are the three great elements, the protein, fats and carbohydrates. Protein he cannot take because it stimulates cell action and the carbohydrates he can take because they are most easily digested and most easily assimilated and produce the least harm in the body in any way and do not stimulate the cells. Fats are objectionable because they spoil the patient's appetite particularly animal fats. When the patient has fever, he has very little gastric juice, almost gastric acid. When a patient has fever his mouth is dry and his stomach is just as dry as the mouth,—that is the gastric glands are just as inactive as the salivary glands, so for this reason we must avoid anything that hinders the formation of gastric acid. Pawlow showed that fat hinders the formation of gastric acid so for that reason fats are undesirable in fever and should be taken only in small amount. Half an ounce to an ounce in the course of a day is all the fat the patient should take but it is better that his food should be mostly made up of carbohydrates and a small amount of protein. How many calories will a patient eat that has fever? A patient lying in bed, quiet, not doing any work at all, does not require as much food as he would if he were working, but at the same time he has a fever. He is losing a great deal of heat. The poisons are stimulating the tearing down of his cells so he needs a little more than he would if he were simply resting. So the patient's food ration must be about half way between the work ration and the rest ration. In other words, the average patient should take somewhere from 1500 to 2500 calories of food. This must be mostly carbohydrates. The ordinary bill of fare is made up in about this proportion. Suppose it is 2000 calories, 10% of it would be protein, 200 calories. The fats would be 600 calories and the carbohydrates 1200 calories, 1% protein, 30% fats and 60% for the balance carbohydrates. If it were a fever patient, we would make this proportion or ratio different. It would be then 100 calories of protein, 200 calories of fat and 1700 calories of carbohydrates. That I believe to be an ideal fever

ration. The amount of protein that a patient requires in fever is so small thinkx you do not need to pay any attention at all to it. You can get it for entirely except do not give the patient too much, that is the important thing. Be careful not to give the patient too much for you never will give too little if you give the fever patient natural foods. You cannot find natural foods that are real food that contain so little protein that the patient is going to suffer any injury if you feed that food when he is suffering from fever because he cannot assimilate protein and it acts also as an excitant and so stimulates his body cells. He cannot digest protein because he he does not make hydrochloric acid and he does not make pepsin. It is very hard for him to digest at any rate, he can only digest a very small amount. Then we must remember that on account of the tendency to retain the salt in the tissues we should drop salt out of the diet of a fever patient. When I was a boy I had malarial fever and my mother gave me watery gruel and I didn't think it was very nice. She put some raisins in it to flavor it instead of salt. By mother had not a medical education but she simply adxopted the current idea with reference to that, that the fever patient must not have salt but simply watery gruels. That is an idea that has prevailed from the most ancient times, that fever patients must not have much salt. The patient should have very little salt. The least little bit perhaps, won't do any particular harm but we won't use very much salt at any rate. I have mentioned to you the loss of body salt. How are you going to make up this loss of salt? We must take foodsthat containx the body salt in considerable amount. Where will we find these? Will we find them in a meat diet? You would rather find them in a meat diet, wouldn't you? but this is not the case. Meat is the body itself, isn't it? The salts are not there in the meat diet. Why? because when you feed corn to the pigs, the corn has the salts that are ~~xxxxx~~ needed for the body and the protein that is needed and the fat that is needed, the carbohydrates that are needed, there are all there in the corn, don't you see. When the pig eats corn, these different elements go to different parts of the pig you see. The protein goes into the muscles, the

carbohydrates are used up to keep the pig warm, the fat goes into the lard of the fat of the hog. What becomes of the lime and other salts? They go into the bones. What is true of pigs is true of all animals, you see, so when we take the lean flesh of animals, the beefsteak for instance, the salts are not there, they are in the bones so if you are going to get your corn back you have got to eat the whole hog, otherwise you lose your salts and for that reason beef tea, beef juice and meats of all sorts are objectionable. Now you see how common sense comes around all the time to sustain these practical sensible natural ways of doing things and natural principles. When you get hold of a great natural principle, it is perfectly safe to stand on it solid. You can follow it in all its ramifications and it always makes good. It is always square. Isn't it strange that people have not thought about that. People have got the miserable conception that beef tea and meat were strengthening so have been taking this partial food that has been robbed of some very important elements and are depending upon them for strength and are suffering in consequence. That is why the teeth are decaying so fast. That is why bone disease is so frequent. It is because the body is starved for salts and the fever patient in particular is losing his bodily salts so we must see that they are well supplied.

v-p

Dietetics for Nurses.

We must see that they are well supplied. There are certain foods that supply these very well. Now vegetable broths and vegetable purees, gruels and fruit juices all abound in body salts so they are the things that will supply them to the body. The liver and kidneys are crippled in fever. Why? Because here is being produced an enormous quantity of poisons by the typhoid germ. The typhoid germs invade the body and are producing enormous quantities of poison. The liver has to deal with them. ~~and the kidneys~~ It has to destroy them and the kidneys have to eliminate them and there is an enormous amount of work to do so these organs are crippled and we have to take care not to lay upon them any unnecessary burdens and on that account we should avoid doing anything that will injure them, mustard for instance, pepper, peppersauce, vinegar, things that are not food at all should be carefully elminated from the dietary. No fever patient should ever have those things at all because they make extra work for the liver and kidneys. Now, if you are going to give the patient butter or fat of any kind be sure it is absolutely sweet. Ordinary commerical butter contains a great deal of dutyric acid. That throws extra burden upon the excretory organs. Alcohol is the worst thing possible you can give to a fever patient because it makes more work for the liver, because has to destroy the alcohol. Tea and coffee also have poison in them and it is a liver poison too, the very worst thing you could possibly give that poor crippled liver that is striving so hard to save your life for you. Then there is another class of things that are particularly objectionable and are almost universally given to fever patients. The broths, beef tea, chicken broth, bouillon and extract of beef. You could not possibly give a fever patient anything worse than those things because they represent not food but the poisonous elements of the tissues. At the same time there are substances which stimulate metabolism to a very high degree. They stimulate metabolism to the highest degree. That is why people take a cup of

beefteas and feel better. It is because the cells are for a moment stimulated. A superintendent of an insane asylum told me once that he had given up the use of brandy entirely. He said, "I use beef tea, that is stimulating enough." He made a concentrated extract of beef tea and that was stimulating as anything he wanted but you don't want stimulation in fever. You want to lessen this body destruction, to lessen the cell activity. That is what you lower the temperature for. That is what you keep the patient quiet for and that is what you should feed the patient for in such a way as to save the cell destruction of the body by giving the patient unstimulating things. We must make the food sufficient to meet the needs of the body as nearly as possible and in that way we will save burning the body itself. If the patient needs 2500 calories of food and we only give him 500 caloies of food or nothing at all he is burning his own body and when he is burning his body he is going to produce certain subtle poisons that are especially produced under those conditions. Acetone and diacetic acid are two very deadly poisons which are always produced in fasting. When the body is fed nothing at all then the body consumes itself. When we eat nothing the body eats itself, so to speak, and produced these poisons. Now there is one thing more that is very important to mention and that is that eggs to tend to putrefaction in fever and we must avoid eggs. We must avoid foods that putrefy. Consequently we must rule out all means of all sorts. This is another reason for excluding meats for because they undergo putrefaction. Oysters are often given to fever patients. You could not give a fever patient anything much worse than an oyster. If you let an oyster stand in a warm place a little while it gets into a horrible condition. Put an oyster into your pocket and carry it around for 24 hours. What would be the situation of it? What would be your situation? You would be likely to be shunned as a nuisance. An oyster carried around in your pocket gets into a state of advanced decay of putrefaction, produces foul odors and gases and poisons and if it was an oyster in the stomach or colon or any fragments of that oyster is left undigested or unabsorbed in the colon or any place in the interior of the body it would be in just the same condition and these poisons would all be

absorbed in the body so meats of all kinds must be discarded and cheese must be discarded. In giving you these talks we are getting fundamental principles that apply to all diseases. Next Monday we will take up the subject of diet for tuberculosis.

End of this lecture.

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Radium.

From note Book page 4562.

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

March 13, 1913,

at 8:00 P. M.

by

J. H. Kellogg, M. D.

(Last part of lecture)

When it was discovered that radium possessed these wonderful physical properties, the question arose, what use could we make of it and it wasn't very long before the discovery was made that showed its powerful effects upon the tissues. One of the discoverers of Radium who had some other material in his pocket and carried it there a few hours, found to his great distress, a very arduous sore after a week or two upon his chest and it was quite a long time in healing. This was Professor Currie who with his wife discovered Radium and further investigation it was found that Radium had the effect when applied to living things to destroy life. When it was applied to seed if the application was continued long enough the seed refused to germinate. When it was applied to eggs of fish the eggs if they hatched out at all developed into deformed fish. The eggs of frogs were deformed. When it was applied to the eggs of birds and the embroys of other creatures it was found that it had a very destructive effect upon them and when it was applied to the human body it was very soon discovered that it was capable of producing very powerful effects. This led to its use for cancer and it was found to be a most useful remedy for cancer. Cancers which were not amenable to any other treatment at all could be influenced by radium. At this very present moment I am treating a patient who has an internal cancer by the application of radium and so far with very promising results. The disease had advanced so far that it cannot be removed by any means known to human science at the present by using the Radium we are hoping to accomplish a good deal.

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I have seen cases in which very bad cases of cancer were made to retreat to such a degree it looked as though the patient was going to make a good recovery although the Radium has not been used long enough yet to know how far far it would will go to effect complete and permanent curesof cancers. Still it is found to be of very great service in checking the advance of the disease and in controlling cancerous growth that are otherwise incurable but the greatest value in Radium is found to be in treating various chronic complaints. It is found that Radium Emanation is more valuable than Radium itself and in this form it may be entirely taken into the body, dissolved and carried into the blood and through the blood to every part of the body so each particle of this Radium Emanation nitun as it is called can be carried to every part of the body and every one of those partic/les throws off its emanation and produces very remarkable effects. It found for example, that cases of rheumatism are wonderfully helped by the use of Radium/in this way by the inhalation of this Radium gas. Rheumatism is a disease in which certain poisonous materials are left in the body that ought to be burned up. Gout But there is another disease of this sort in which cinders known as uric acid are left uncomsumed in the body and they accumulate in various parts of the body and produce inflammations and deformities. It is found by the use of Radium Emanation these materials may be carried out of the body so the body nodules disappear and the pain dissapears. It has proven remarkably successful in the treatmeat of Rheumatism. When I visited Joachlimstahal I found a large establishment there erected by the orpheum Government in charge of a very fine sienfiscientific man and the doctor was a man who was of very high standing, Dr. Blaudwitz, a man known throughout the world well. He was the government superintendent so the superintendent of these Radium waters and he told me they refused every year some hundreds of people suffering from rheumatism and that 80 per cent. of those whot came were practically cured. I say myself patients who were in a very lamentable condition getting well, patients who had suffered from infantile paralysis and from other paralytic troubles are improving

under the influence of drinking radium water and taking the Radium inhalation. After making a careful study of the matter I thought we would introduce it at the Sanitarium. We are very shy about introducing these things until they have been tried. Dr. VonNoorden had introduced in into the hospital at Vienna and Dr. Heis had introduced Radiuminto the hospital for Berlin and I thought tt was time for the Battle Creek Sanitarium to be introducing this new feature so we fitted up a department and we have, I think, the most efficient department for the use of Radium in the world. We take advantage of a point which seemed not to have been recognized before. I called attention a little while ago to the fact that the positive particles of the emanation concentrate upon bodies tnt have a negative charge. A great difficulty in the use of Radium I found in Vienna was the difficultym of keeping it in the body long enough and in order to keep it in the body a sufficient length of time to do any good they shut the patient up in a little room and in fact put about a half a dozen people in that little room and shut them up, a room only big enough for one and they were made to breathe the same air over and over and over again and the air in this way becomes really rather unpleasant. It occured to me to take advantage of the physical property I mentioned to you and charge the body negatively so that as the Radium gas was inhaled, the Radium being positive and the body being rendered negative, the body would concentrate the Radium and retain it so in our apparatus we have a couch upon which the patient lies. which standsupon glass legs and the patient is charged negatively while inhaling the Radium containing air. The positive particles instead of going out of the body as they are taken in they are retained and concentrated until the time for them to accomplish some benefit. Another method of using the Radium is by the Radium water containing the Radium Emanation and it is absorbed through the water taken into the body and so circulated through the blood and in this way performs the same functions as when it is inhaled in the air. I applied the same principle to the baths, charged the patients negatively while in the bath

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and the water positively so that there will be a movement from the water toward the patient and the emanations is taken in through the skin and will be retained in the body while emanation is concentrated upon the body. We find this very valuable also. Then another method of using the Radium is by drinking the Radium water, that is saturated by the emanation or containing Radium Emanation in certain quantities. The Radium Emanation must be measured. It is designated as mache units and it has been found by taking into the body somewhere from 500 to a thousand mache units a day very decided effects are produced. Drinking a thousand ~~xxxxxxx~~ mache units of Radium Emanation will have the effect to absorb the gouty nodules and to relieve rheumatic pains and the pain of neuralgia. It has been found also very benefifical in cases of arteriosclerosis and in high blood pressure and is being very extensively used in all these cases in the great European spas and various other places where it has been introduced. I think we were the first to introduce it into this country. We introduced the Radium treatment a year ago last January. I noticed a paragraph going the rounds of the newspapers quite extensively lately that Johns Hopkins Hospital University were just going to introduce in a short time the use or Radium Emanation being the first to introduce it into the United States but John's Hopkins is a year behind him this time. However, I was glad to see that the authorities of this great university have placed the stamp of approval upon the use of this remedy because they have been more or less prejudiced against it because of the extraordinary and unreasonable claims that were made for it when it was first introduced. It was thought at first that it was going to cure everything so all sorts of claims were made for it and a great deal of quackery were connected with its use. I was myself prejudiced against it and although I knew about it some three or four years ago. I refused to have anything to do with it but after going abroad last winter and making a careful study of it on the ground I became satisfied of its real value and so we introduced it.

v-m

I should think about 150 cases have been treated in our Radium Department during the last year and certainly a very large proportion of them have been greatly helped. One of the doctors stated to me the other day that a lady who suffered from rheumatism a long time and had great pain was completely relieved of the pain by one treatment. In such cases one feels there must be a little psychological effectwith the physcal effect yet the rheumatic pain is about the hardest thing to relieve by Christian Science or physchological influence as anything I know of. It is a good deal easier to relieve a imaginary pain than it is to relieve these genuine rheumatic demoniacal pains which torture the lives of many sick people. I was talking with a lady today taking the Radium treatment whotold me that for six months before leaving home she had been confined to her bed. She could not walk at all. She said to me today, "I walked way down to the city without any difficulty, without suffering any pain" and she is feeling very much pleased indeed with the progress she has made. Radium, I think, has had something to do with it but it is not the only thing. For the best effects of Radium it is necessary to combine with the Radium the antitoxic diet. Thosewho are making use of Radium abroad take care to say to their patients, "You must stop the use of meat because meat contains the elements which produce rheumatism. The uric acid of beefsteak is the cause of rheumatism. Poisons which result from the putrefaction of meat in the intestine are the cause of rheumatism and consequently it is of the greatest importance that these poisons should be eliminated, discarded entirely if one expects to get rid of rheumatism by the use of Radium.

v-m

Stereopticon Lecture on Radium, March 13, 1913 cont'd from note book page 4556

If radium is curing the rheumatism, you may still be cultivating it at the same time faster than the radium can cure the old rheumatism you see, so we must combine prevention with the cure. We find also very great value in the use of diathermy or thermo-penetration. This is wireless electricity harnessed and made to work in the cure of the sick. By means of this ingenious apparatus we are able to employ the wireless electricity in such a way that it can be directed to any part of the interior of the body and is converted into heat wherever it is needed, so adhesions and inflammatory exudates are made to absorb and pains are relived and very great relief is obtained.

Now I was going to talk to you about some other things but I see my time is really up and I think I will let you off a little earlier to night. Question: How long will the radium you have brought here last? Answer: It depends upon how it is used. There is another way in which we use radium,-- that is, injecting the radium itself. I have had several new supplies since buying the first supply because we sometimes inject it into the tissues and so it becomes a permanent part of the body, remains there throwing off its rays. In certain cases it is found to be advantageous. Madam Currie discovered the radium in what is known as the residue. There are Joachimsthal Uranium mines that have been worked for hundreds of years and from these the beautiful uranium colors are produced. There is left behind a residue after the uranium had been separated and this residue was sent out the back door and a great deal of it went down the creek. A ton of this residue was sent to Madam Currie of Paris and she found in a ton of this residue, I think somewhere about 5 grains of radium. That wasn't very much was it? a quantity of radium that would way as much as 5 grains of wheat,--that is, in the residue. In this residue it is several hundred times as abundant as it is in the original ore so you see there is not very much of it in the ore itself. It contains very little, but it is so marvelously powerful that it produces very decided effects.even in these very moderate doses. Another effect that has been found the radium produces which is

very interesting that it activates the ferments of the body and that is the way it burns up uric acid. There is a substance in the body which burns up the uric acid when a person has gout this substance does not do its work but the radium stimulates it to action. It also activates other ferments, so in cases of rheumatism in which there are deposits in the muscles along the tendons it will burn up the exudate and so great relief is obtained. The painful points are generally the points where the muscles are attached and the connective tissue parts. In muscular rheumatism the pain is greatly relieved because the deposits are around the large joints. The X-ray examination will show the little rheumatic points in developing in rheumatoid arthritis or deforming rheumatism. Upon these little sharp points, there will be little projections often from the side of the vertebra, little spicules will form. Our X-ray specialists frequent observe these rheumatic beginnings in persons who have not yetfelt any rheumatic pains. That is one of the things that occurs in advancing years. One of the consequences of the retention in the body of poisonous substances which we ought not to permit to accumulate. (If you find the joints are getting a little sore, feel a little stiff when you get up in the morning, it is the beginning of rheumatism. You find when you have been sitting for a while in a chair, when you first get on your feet you feel clumsy, a little stiff, you don't move readily, that is the beginning of rheumatism and then is the time to take the matter in hand to find out the cause of it and it is comparatively easy to control this disease if we understand the nature of it. The first thing is to get the bowels to acting freely three or four times a day. Cut out all things which produce rheumatism and lead to intestinal putrefaction, then the X-ray comes in to assist in the diagnosis and radium comes along as a great help in effecting a cure,) but I thank you for your attention.

v-p

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

Monday, March 17, 1913 at a p. m.

4568

by

J. H. Kellogg, M. D.

Q—Can epilepsy be cured?

A--This is really an important question because epileptics are increasing. You know that as the thing is going on we are all likely to get to be epileptics after awhile. I can prove that to you. Sixty years ago there were only five hundred epileptics to the million in this country. Ten years ago the number had increased to fifteen hundred in a million. There is an increase of three hundred percent. You can see what that will mean. Fifteen hundred at the present time, it is more than that. In forty years from now it will be forty-five hundred, don't you see and in fifty years more it will be 9,000 to the million, almost one percent. We will add ten years and call it one percent and in another fifty years it will be three percent, in another fifty years nine percent; in fifty years more 27 percent and in another fifty years eighty-one percent; then in fifty years more it will be 243 percent, but we couldn't get up ~~xx~~ quite so high as that of course. 100 percent is as high as we can go. That would be about 350 years from the present time, in less than 350 years from the present time at the rate we are now going, we will all be epileptics, but we won't get so far as that because a lot of us are becoming lunatics at the same time. Fifty years ago there were only six hundred lunatics to the million and now there are 1800 lunatics to the million so you see at that rate in about three hundred years from the present time we will all be lunatics at the rates we are going, so we won't live long enough to become all epileptics, but you see we are getting to be"brightics"as they say over in France. Great numbers of people are coming down with Bright's disease. Three times as many people are dying of Bright's disease now as died of Bright's disease forty years ago in this country. Down in Chicago there are two hundred and sixty-four people die of Bright's disease at the present time where only one hundred died twenty-

nine years ago. We are increasingly prone to Bright's disease and heart disease and arteriosclerosis. Now forty or fifty years ago, you didn't hear anything about arteriosclerosis, you didn't know anything about it. When I was a medical student forty years ago, Bright's disease and arteriosclerosis were just mentioned as a curious condition that was rarely encountered, but now, why dear me, everybody is getting it. I think it probably about ten percent of all people fifty years of age at the present time are beginning to show evidence of hardening of the arteries and high blood pressure. That is what is carrying people off, old age. No Old Joe Cannon seems to be proof against it for here away up above sixty years of age, no he has got it, I remember now, he has been smoking hard all these years, yet he manages to keep going but I remember that our in Kansas during a campaign a year or two agi, I remember he fainted away once on the stage or come awfully near it and had to stop his speech. That is one of the early symptoms of arteriosclerosis. He was beginning to go to pieces. He is simply uncommon tough but the average man cannot stand so much abuse as he has given himself all these years. The average men see what Joe Cannon can do and he see what some other tough, hardy, wirey man can do, so he tries to do the same thing. It is a good deal as Sam Jones said about a man in Omaha some years ago when he was giving a lecture against tobacco. A man got up and said,"I liked what you said last night Mr. Jones, but I don't take any stock in what you are saying tonight. Why, I am eighty six years old I have been smoking ever since I was ten years old and I am a pretty hardy man yet and what are you going to say about that." Sam Jones said, "If you hadn't been uncommon tough, they would have had to kill you with an ax on judgment day". Now there are some people that seem to be very hard to kill. Epilepsy is one of the diseases of degeneration that is coming to be increasingly frequent, uncreasingly common. It is the result of wrong habits of life. Degeneracy of the race is the thing that is giving rise to increased frequency of epilepsy so it is getting to be an increasingly serious matter. Down in New York they actually had to set a part a part of the state to keep them in. They have what they call, the Craig Epileptic Colony down there and they are

colonizing the epileptics there on a farm so that they won't contaminate the rest of the community. If a man has epilepsy and marries a woman that is perfectly healthy, one fourth of all the grand children will be epileptics. They will take after that man. If an epileptic marries another epileptic half of the children will be epileptics and a larger share of the grand children. This is a disease that tends to an extreme degree to transmit itself by heredity, not the disease itself but the predisposition to the disease, so the best remedy and the first remedy for the epileptic is to be born of parents that have not any epilepsy in their heredity. That is the most important thing of all is to be born right. If you have not that felicity, then the next best thing is to know how to so conduct yourself as not to provoke the development of this disease. It sometimes shows itself in early infancy, sometimes not until a little later, at the age of 12 or fifteen years, sometimes not until still later, until thirty or forty or even fifty years and in some cases between fifty and sixty years I have known epilepsy to develop to appear, but there are certain things that can be done, things that wonderfully control this awful malady. In the first place the things that produce epilepsy, in the first place will aggrevate epilepsy. Now what will produce epilepsy? Everything that tends to race degeneracy will produce epilepsy. Colon poison, tobacco, whishey, alcohol in any form, meat eating, all of these things, including the use of condiments tends to epilepsy and all of them aggrevate epilepsy. Perhaps some of you remember that when you have fed your house cat on beefsteak or let the house cat eat too many mice or rats, she began to have fits. Some of you have had that experience. If you have got a nice pet cat and you want to keep it you take care not to let it eat rats and mice or very much meat, so with the pet dog if you want to have good healthy dogs, be careful not to let them have too much meat. Then you sit down to the table and gorge yourself with all kinds of dead beef when you are not willing that your cat or dog which are carniverous animals should have as much meat as they wanted. I was talking this matter over some years ago with an expert in insanity. I was telling him an experience I will tell you about shortly. I will tell you the other story first. I gave a talk once on this subject before

a medical society and there happened to be a doctor present who had charge of an epileptic ward in a large insane asylum. He said nothing to me at the time but several months later I happened to meet him and he said, "After hearing your talk in the medical ~~society~~ society about meat and the effects of it upon the nervous system, it occurred to me it would be a good thing for me to shut it off the bill of fare of those epileptics under my case". He said, "I had forty epileptics in my ward, so I went home and immediately cut the meat out entirely and kept a careful record of the number of fits they had, and," he said, "I found that in three months they had just half ~~as~~ many as they had before and I did not do another thing but simply cut off the beef steak."

I was telling this to an expert in insanity who had been connected with the Kankakee Insane Asylum in Illinois for many years, Dr. Warner, now of Chicago, a consulting specialist there, and Dr. Warner, said, "Why of course, I never allow epileptics to have a bit of meat. Why, meat produces fits, it gives dogs fits and cats fits." Did you every hear of a horse having an epileptic fit. Horses and cows, vegetarian animals, sheep and goats do not have fits. It is the cats and dogs and the flesh eating animals that have fits, that have epilepsy. So he said, "Of course, I never let epileptics have meat at all!" So that is one of the very first things to cut the beefsteak out of the dietary of the epileptic. If you could prohibit the meat eating, ~~all~~ of the epileptics' grandfather and grandmother and father and mother, we should not have epilepsy. If we could have started early away back with the epileptics' grandfather, there ~~would be~~ is no likelihood of his having it. There is no more reason why vegetarian men and women and vegetarian children should suffer from epilepsy then that a vegetarian sheep or a vegetarian goat or rabbit should have epilepsy. Well, there is another thing that is very important in these cases and that is to cut out the salt. That is rather a recent discovery, that the suppression of salt in the dietary has a wonderful influence in controlling this disease. Some sever or eight years ago, I was in a large childrens' hospital in Switzerland and I met there Dr.Combe of whom some of you may have heard, a man who has given such great

study to the question of autointoxication. I went there on purpose to see Dr. Combe but after he had given a very ~~fine~~ scientific study to this question of ~~pure~~ autointoxication. He is one of the leading physicians of Europe. Down at Lausanne where he lives, the town is filled with people. Royal personages come there to her. Lords and ladies, princes and princesses go there to consult him and the whole town is full of his patients. We have several patients in the house now who have been under his care. He has no Sanitarium and the people have to live in hotels and the principal thing he does is to cut off the meat and cut down the salt. That is about all he has a chance to do, because he has no institution and cannot give very much treatment. They simply live in hotels and eat what he tell them to eat. I became acquainted with Dr. Combe and was up in one of the institutions where he had a large number of children under his care and a German woman came in with a boy four years old while I was there. One look at his face showed that he was not well developed mentally. Dr. Combe said that boys mother brought him here six weeks ago and he was having half a dozen attacks of epilepsy a day. He was a very bad case. I said to the doctor, "You do not expect to cure him do you." He said, "Why certainly. I haven't a bit of doubt that we shall cure him". He stepped up to the mother and said, "Well how is the boy." She said,"Saergute! saergute! saergute!. She told him he had only had one attack, only"einmal" she said. One time in six weeks. Instead of having half a dozen a day, he had had one slight attack in six weeks and the boy had just began treatment and the doctor was very confident that he would get well. The doctor was simply cutting the meat entirely, no meat at all and applying measures that would make the bowels move thoroughly well every day and have the boy kept out of doors and live a healthy life and the salt was all taken out of his dietary and he was given some very small doses of bromide of soda. The bromide of soda was given simply to lessen the nervous irritability somewhat. Without cutting out the salt and changing the dietary, the bromide of soda would make the boy sick. It would have to be given in such doses as to befog his mind and make his stupid and ~~xxxxx~~ produce a state of hebitude so it would itself become a

minace to the boy's health and development, but by cutting out the meat and the salt and applying very small doses of bromide of soda, these measures were found sufficient to control the attack so that the terrible convulsive habit, as the French call it, was by this means overcome.

In the last two years I have had opportunity to try this method in a good many cases and with most excellent success. There are a few cases that are incurable, cases in which the diseasex is due to imperfect development of the brain, congenital epilepsy in which the brain is imperfectly developed are sometimes incurable. These cases may never be cured but the form of the disease in which it is due to a disturbance of the diet, to mal-nutrition or perhaps, to a hereditary pre-disposition, these cases are practically always curable. A hereditary pre-disposition that is regulated by wrong conditions of life, In digestion in children, constipation in children, wrong feeding in children dausing dilitation of the stomach and colon and mal conditions of the alimentary canal,--these are the foundation, the real foundation of trouble in the great majority of cases, and, of course, these conditions must be corrected. Abundant exercisex out of doors in the open air, exercise enough to produce real muscular fatigue every day is very important. Down at the Craig Colony, they say they work the fits off on the hoe handle. They make the patients hoe and they find it a very great benefit and a doctor who had visited the place said, "The superintendent told me that they worked their fits off with the hoe handle",and that is simply another way of emphasizing the importantce or or saying this very important thing, that a person suffering in this way shall take a great deal of exercise. It is because the poisons of the body are burned up in this way. Now the same thing you see that will suppress epilepsy,--that is an abundance of exercise that causes free perspiration and active purification, complete and thorough purification of the [redacted] blood by active breathing and increased heart action. That same thing will lessen nervous irritablilty, don't you see. So when a man gets mad and swears and tears around and makes things unpleasant for his family the hoe handle is a good thing for him too, don't you see. [redacted] And women that have awful attacks of [redacted] hysteria and generally, well I won't say, any

more unpleasant words with reference to the ladies making themselves generally disagreeable, at least, the washboard is good for them and the broom, housekeeping, scrubbing and outdoor work of some kind, work at the flowers is a splendid thing. I tell you we are all suffering, we are degenerating because of ~~kicks~~ lack of out door exercise. Man is naturally an active workman. Our nearest relatives in the world are the ~~monkeys~~ monkies, the orangoutang, the chimpanzee and the gorilla, the higher ape, they are our nearest relatives. We all know that. They have bones just like ours. We have muscles like theirs. Our internal viscera are so exactly like theirs we could not tell the difference between them by examining them only a very expert anatomist could do that. How active these animals are. Everybody goes to the monkey cage when he visits a menagerie because

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things are all in motion there. These creatures are active and vigorous. You will see a chimpanzee acting on a trapeze and going through the most elaborate gymnastic performances. He will beat the German turnverein in his gyrations and he will keep at it for hours. He is working up an appetite don't you see. He is obeying the behest of the Almighty. The Almighty said to Adam when he made him, "Thou shall earn thy bread by the sweat of thy brow". Don't you remember that is what God said to Adam. "He must earn his bread by the sweat of his brow? There is a certain amount of depravity that has to be sweated out and it is the only way to get rid of it. If we keep it in it explodes in one way or in another, in the form of ~~skeptic~~ epileptic fits and other things, mad fits, morose fits, pessimistic fits and other things.

Q. Can the effect of gallbladder be cured without operation?

A. Yes, they often get well. I don't mean to say they can be cured because we do not cure much of anything. There is only one power in the world that can cure and that is the same power that made us. We call this power Nature. That is the most insignificant way of speaking of our Creator. Regards the idea, we do not like tosay God so we say Nature. Now Nature

is not a ---------. Nature is simply an abstraction. Nature is simply the name ----------, the name of thiggs that we see about us. We call that all Nature and we talk about Nature doing this and Nature doing that. It is the same creative power that made man and made the world, that made us all at the start. That is the power that heals. That is the only power that can heal so I cannot say that we can cure diseased gallbladders but I can say this, that diseased gallbladders get well. Almost all of them get well without any doctors help in spite of all the patients do and doctors sometimes too, perhaps they get well. Why if no gallbladder ever got well except when some doctor operated on it we should probably have an enmously greater mortality than we do because in 99 cases out of 100 the inflammed gallbladder gets well of itself. A pain in the right side here accompanied by jaundice is quite likely tobe gallbladder pain. Many pains here on the right side under the ribs is gallbladder touble/ When there is no jaundice. A great many people are suffering from gallbladder troubles that don't know anything about it. They have pain and attribute it to the stomach or think they have indigestion. A great many people have gallstones and don't know anything about it. They go on all through their lives and the gallstones are discovered perhaps after death if there is a postmortem examination made and in one of the large hospitals in Germany where post-mortem examinations are made in every case it has been found that one person out of six who dies has gallstones. If we counted up heads here we might find that we have quite a large number of gallstones here. I suppose one person in every ten in this room has gallstones. Don't get scared about it because it is not going to do you any harm. There has to be a combination of circumstances to make that gallstone at all troublesome. Here for instance, is the gallbladder, here is the gallduct, here is where it comes down and joins the larger duct. Suppose you have a big stone in there. It is not going to make you any trouble because it will come down to this little opening

and lie there and when the bile throws in from the liver it will lift up when the gallbladder contracts; it will squeeze along beside it and lift it up but if it happens to be a stone of this size, a smaller stone, it will make trouble be_cause it will get in and plug up the opening and the bile can come from below but when it undertakes to go back the that stone acts like a ball valve that shuts right down and stops it and there will be pain. If it happens to be of such size that it can barely squeeze through after a while the pain will cease because it will get down into the larger duct and the small intestine and the gallstone will disappear.but gallstones and gallbladder troubles are due to infection and this infection is the thing that makes the trouble. It is not the gallstones but the infection and the infection is likely to be producing other things beside gallstones. The infection is very likely to be causing trouble with the duodenum or making an ulcer. You will see how readily that may occur. Suppose for instance, this-coul to be the alimentary canal here a part of it. Here is the stomach. Here is the small intestine. Here is the ileocecel valve down here. Now right here is where a little duct comes in from the liver. Here is the gallbladder that lies right under the liver a little duct that opend up-into the little duct from the liver. If we have an inflammed and infected gallbladder it is because infection has started down here in the colon and its has gradually worked way up to the small intestine, got up here into the duodenum and has crept up through this little duct into the duct that runs through the liver and also has gotten up into the gallbladder. The people who have typhoid fever usually have infected gallbladders and sometimes during the fever and sometimes the typhoid fever germs remain there in the gallbladder after the rest of the body gets well. A person may get rid of all the fever germs that are down here in the colon/in the small intestine but the typhoid fever germs remain right there in that gallbladder so that person/ goes around scattering typhoid fever germs wherever he goes. There was a woman

discovered in New York sometime ago who had typhoid fever 50 years before and she had been going about from family to family and everwhere she went and stayed any length of time the people had typhoid fever. She lived in a restaurant one time and the people who had patronized the restaurant had typhoid fever. She infected the knives, forks and plates. She was another time in a bakery and the people who patronized the bakery got typhoid fever. The biscuits, cakes, bread and crackers and everything was infected with typhoid fever with that woman's hands so where she finally worked as cook the people had typhoid fever.

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And every where she went she left typhoid fever and she has become a historical character. She is known in the medical books as "typhoid Mary" and the study of the subject has shown that these typhoid carriers are very common, so now a days if the doctor does his duty, he won't be satisfied with the typhoid fever patient until he is certain that he got the patient entirely rid of typhoid fever germs so they won't be scattering the typhoid fever germs around wherever they to. We have diphtheria carriers and pneumonia carriers but people carry it in their throats for weeks and months after they get over pneumonia. That is why they have relapses and that is one reason why people have relapses of influenza, because they carry the germs with them. We are just learning about this subject. We don't know much about it yet, so if one has an inflamned gall bladder, it is important to investigate the matter thoroughly and find out the source of the infection and suppress it. The trouble may be, the ileocecal valve is spoiled so that fecal matter is working up all the time and infecting the canal. The situation is exactly the same as though the sewer had broken into the dining room, and the dishes were soiled with sewerage and there was sewage and filth excreted and getting into the food upon the table. Of course, under those circumstances, you would expect mischief and there would be infection. It is just the same in the body whether this infection comes in through the colon and climbs into the dining room through the back door or the front door. It is all the same thing. The small intestine is really the dining room of the body. That is the place where the food is digested and the body takes the nutrient material in it. There are millions of little villae that project out here into the small intestine and suck in the nutriment. That is where the food is taken into the body from the small intestine. So when infection comes up from the colon through an incompetent ileocecal valve there is going to be trouble sooner or later and infection of the gall bladder is one of the troubles.

Now the observations made in our X-ray department show that one person

in every six of the people examined have this incompetent ileocecal valve. The last patient I saw this evening, just before coming in here was a patient suffering in this way. He has an incompetent ileocecal valve and the infection has traveled up here and he has this infection around his duodenum and around his stomach and in his liver, and three or four hours after meals he had terrible pain. Probably he has ulcer of the duodenum here and this incompetent ileocecal valve and infection and adhesions along the canal. Just what has got to be done for him, we do not know yet. We may have to do some operation because some of these conditions are very had to overcome, so we do not know. This ileocecal valve that is crippled can be repaired and made almost as good as new, repaired so that it will work properly and that is one of the first things to be done in these cases. Though the very first thing to be done is to re-form the flora of the intestine, to get rid of the infectious material. When you have a backing up from the colon, it is important that the colon should be kept very clean. If you have a colon packed full of putrefying material all the time, it will be backing up all the time, but if, on the other hand you adopt a dietary which is so clean and wholesome that there is no chance for putrefaction and if you take pains to keep the colon empty by the use of proper means, then there is nothing there to back up and there is nothing very infectious to disturb or defile the small intestine if it does back up, so you see how important it is to have our interiors clean.

Q--Can diabetes be cured and how?

A--Very rarely. Yes it can be cured, but you have to keep right on curing it. That is the trouble with it. It is like corns. You can cure corns. You see advertisements in the newspaper, "I cure corns", and these men that cure corns keep right on at it. If you have got a corn, you get it cured and in two weeks you must get it cured again. You have got to have it cured as long as you live, so long as you wear tight shoes. Since I have worn cloth shoes, I have got rid of corns. Since adopting cloth shoes I have discovered I do not patronize the corn doctor any more. My corns have absolutely disappeared. There is not a

trace of them left for which I am quite happy for I was very much ashamed. I have never told people before that I had corns but now that I am rid of them I feel free to mention it. The diabetic is in just that situation. He is crippled. There is something wrong with his machinery and he has got to keep tinkering at it all the time as long as he lives. He has got a defecting something somewhere. Now we do not know exactly what it is or where it is. Personally I am inclined to think there are three generalclasses of diabetics. One class in which the liver cannot store up glycogen so that carbohydrates pass right into the blood and are there in such large quantities that they have to be carried out through the kidneys. The kidneys hold in the blood about three parts of sugar in a thousand. There is always sugar in the blood, three parts in a thousand and it is the duty of the liver to keep the blood supplied with that much and the kidneys will tolerate that much. If the amount increases, the un-three parts in a thousand if it gets to be four or five parts in a thousand, then the kidneys must take the sugar out because it will do harm to the blood cells of the body. ~~[illegible]~~ So either the liver may allow the carbohydrates to pass into the blood so that the liver does not hold the carbohydrates back as it ought to by converting them into glycogen. It has lost its power to store glycogen so the carbohydrates go right on into the blood and become so much in the blood that the kidneys must protect the body by keeping the sugar out or the trouble may be at the other end, that the kidneys are too sensitive to sugar so they take the sugar out when there is only three parts in a thousand present. The trouble may be at that end and there is another cause that has been discovered in more recent years. I might mention that the last named class of cases is probably very rare, though I think we have a case in the house at this very moment, one of the few cases that have been observed, a ~~The~~ person suffering from this peculiar rare kind, so-called renal diabetes, Tuesday, March 18, diabetes due to a disturbed condition of the kidneys. Now there is another form of diabetes which is probably the most serious form, that is a form in which the pancreas have lost their power to

make a particular secretion which is necessary for burning up the sugar. You see sugar is fuel to the body, what coal is to the locomotive. It is the means by which the heat and the strength and the energy of the body are maintained. We must have sugar to live. The heart must have sugar to beat. At every heart beat there is a certain amount of sugar burned up and when the heart cannot get any sugar it has to stop beating. If we don't take in sugar in any form the body makes sugar out of the muscles and brain and out of the heart itself, so it is very important we should have sugar. It is one of the most essential of all the elements of food, not in the form of cane sugar but in the form of starch naturally because the starch is converted into sugar in the process of digestion. Now the pancreas makes a ferment or a particular substance which when it is carried by the heart, blood,corpuscles and distributed through aut the body, by means of this ferment the sugar is burned in the body. This ferment acts upon the sugar just as the fulminating powder in a percussion cap acts to a gun. It starts the combustion. That fulminating powder in the gun, the fulminating marcury put into the cap in the gun, that percussion makes a spark which ignites the powder and so the gun goes off. That is exactly what happens when your muscle contracts. There is a little explosion due to this ferment in the blood that acts upon the sugar and burns it. It is the combustion of that sugar that gives the power in the muscles. Now there may be trouble in either one of those three places, the pancreas, the liver or the kidneys, or they may all be in trouble at the same time or in two or in all three may be involved, so it is impossible to cure diabetes. I don't think I ever saw a case cured, but we can show a man who has diabetes how he can live in such a way that he can tolerate his disease for, perhaps, a long long life time. A good deal depends upon the nature of the case. If the trouble is due to a diseased condition of the pancreas,--the pancreas lies right behind the stomach and if the trouble is due to the pancreas--I ought to tell you a little more about this. Here is where the pancreas lies, here is the head of the pancreas and there is a little duct that runs down here and goes

into the duodenum right where the bile duct does and when infection travels up into the liver, it travels up into the pancreas also so autointoxication, constipation and these other troubles that infect the intestine are the cause of diabetes also, so the infection comes into the pancreas and causes information of the pancreas, then it can no longer do its work and sugar appears. In other words, the patient gets diabetes. Now if the pancreas is damaged to a certain extent the damage cannot be entirely repaired, but a person who suffers from diabetes can be instructed how to eat and how to conduct himself in such a way as to tolerate his disease during a long period of years and one of the most important things for him to learn is, that meat is his greatest enemy. You say,"that is surprising. I supposed a diabetic had to live upon a meat diet", and that is the reason why our diabetics used to die off so fast. I used to feed them meat and every little while one of them would say to me, "Doctor you know I feel sleepy"and I would give him a cold bath to wake him up and he would feel a little better, but the next day he would say, "Doctor, oh I feel so sleep, I can hardly keep awake." He would go nodding off in his chair perhaps. The next day he would not come down to the office at all. Some one would go to get him and would find him asleep in his bed. We would go to work at him and hammer and tong, do everything we knew as to wake the man up and could not do it. In twenty-four hours he was dead. That is the way people with diabetes die. It is diabetic coma and it has been found in France by the researches of Masse and other eminent physicians that meat is one of the most common causes of this diabetic coma. Diabetic coma is due to certain acid substances, diacetic acid, acitone and these substances that are produced by the decomposition or breading down of flesh in the body. If there is anybody here in this room who should go without food and take no carbohydrates even if he should eat other food but simply shut out the sugar and starch from the diet, didn't eat any at all for a few days, he would have this same acid, this diacetic acid and acitone that causes diabetic coma and kills a man that has diabetes. Such a man would get it in this way. It would not cure you unless you kepton

doing it for sometime, then it would kill you, but when a diabetic does not eat he gets diacetic acid in large amount and we find now a days that when a person is getting this diacetic and diabetes coming on, they can often save his life by putting sugar into his grains, in a solution of dextrose, inject it right into his veins, give him sugar in the stomach and inject it into the bowels and sometimes go so far as to put it into the veins of the patient and it is wonderful how quickly the drowsiness and evidence of coma will disappear, so you see meat is the very worst possible thing for the patient to eat because it is the source of the acid or rather the decomposition of the meat in the body is the source of the acid, the putrefaction of the meat. It may be the man's own tissues breaking down that produces this acid so the diabetics should not have meat. The thing that is important for the diabetic is to give him all the starch he can digest, not just as little starch as possible, but just as much as he can tolerate. It has been discovered by von Noorden of Vienna, a most interesting discovery that some diabetics can digest one kind of starch better and another can digest another kind of starch better and another a still different kind of starch. For instance, one will digest oatmeal starch best of all; another will digest potato starch best of all; another will digest banana starch the best and the in which they are most likely to be found favorable. First oatmeal, next bananas, next potatoes and with the potatoes go all kinds of green vegetables. So when a patient comes here, the very first thing we undertake to do is to find out what kind of diabetes he has got, whether he has got renal diabetes, hepatic diabetes or pancreatic diabetes and what condition he is in. Fortunately we have an instrument by which we can do that, the respiration apparatus devised at the Carnegie Nutrition Laboratory. I am very proud to say that we have the only one in a hospital or institution in the world outside of that laboratory. We have the only one. I am not glad the others haven't it, I am sorry they haven't got it, but I am glad we are up to date enough to have it. I found it in use at this laboratory, found what it would do and persuaded the

authorities to allow us to make a copy of this instrument to be used for scientific researches, so we have it. When a patient with diabetes comes here we subject him right away to this instrument and find out what kind of diabetes he has got. In other words we get in his respiratory quotient. If his respiratory quotient is 70 or 67 we know he has got very bad diabetes, he has got the pancreatic kind probably; If it is 73 there is a good chance for him to live ten or fifteen or twenty years; If he has got 75, he has got a good chance. If he was not a diabetic, his co-efficient would be 82 perhaps. Now we have one patient in the house with us whose co-efficient is 100 and some examinations have shown as high as 106, so we know that there is nothing in the world the matter with that patient's liver and there is nothing the matter with the pancreas. It is probably a case of renal diabetes and that a patient has a good chance to live for forty years. The important thing now is to find out what kind of starch will make the least trouble and will be the most easily assimilated, what kind of starch can be utilized and sometimes it is necessary also to make a change. One starch does well for one time, another for another time, but it is not good to have a whole lot of different kinds of starch mixed up together in diabetes. If they can manage one starch that is sufficient, so we make what we call a metabolism chart with these cases and we find it of great importance. A metabolism chart gives us the co-efficient of sugar utilization. The chart shows the amount of sugar taken each day and the amount appropriated each day so we get the percentage of utilization of starch and the moment the doctor looks at the chart, he see whether it is getting better. If the line goes up that is better; if the line goes down it is worse. At the top of the colume is given what the diet was, the number of calories of each element; Down at the bottom, the kind of diet whether it was oatmeal, starch, potato starch or some other sort of starch and at the top of the colume there is given the number of calories, so by following this chart through day by day, the doctor very soon leans what is best for his patient and we find it is of very great importance. So far as I know, there isn't any place in the world

where this thing is studied in this way. In fact, we have only been doing it ourselves for a few months back, but we find it of wonderful advantage in these cases, Now that we have it under control and can actually know with certainty just the effect of our treatment upon our diet. The important for the diabetic is to learn how to live. I had a letter from a doctor not very long ago, sending a patient here with a letter of introduction and he said, "My patient has got diabetes and I am sending him up to you for you to teach him how to live". He said, "I am coming up next week myself for I have got it too". So you see progressive medical men are coming to recognize the importance of making a careful study of this subject. I have gone into this matter somewhat deliberately just now because, while probably there are not half a dozen people who are personally interested in this disease, you may have friends who are and they should not give up because they have got this disease, they ought to come here and if they could stay but a week or two weeks, we can in that time study their case and find out how much the man ought to eat and give him his prescription and bill of fare and sent him home, then keep track of him and give him a chance to make his life as long as he can.

Q---Do you think it best to boil milk for Yogurt Buttermilk?

A--Yes it is necessary to boil it because the milk you find in the market have all kinds of germs in it and these germs will interfere with the growth of the Yogurt bacillus. You must boil the milk if you kill the other germs first, then let it cool and put in the yogurt tablets and you will get good buttermilk. The way the Bulgarian peasant does is this: the milk is boiled for ten or fifteen minutes until just the skin begins to form on the top of it, then it is set aside to cool, then the peasant girl breaks a little hole in the skin, just a little bit of a whole and lifts it up and puts in carefully a teaspoonful or a tablespoonful of the old yogurt buttermilk, then puts that little top skin down again very tight, fits it as closely as possible to keep the air out. The milk then at about a temperature of 110 degrees is set upon a blanket and the blanket is folded around it three or four folds thick

and it is left there for half a day and by that time the yogurt is formed. The milk is boiled down in Bulgaria to about one-half its volume, so that when it is formed it is of the consistency of jelly. That is, perhaps, the best way to make it.

Q--What causes an irregular heart beat, beating three times rapidly then missing a beat?

A--It is some disturbance of the nervous organism of the heart. I should be examined with the electrocardiograph. That will tell just where the trouble is.

Q--How can we learn how to make Yogurt Buttermilk?

A--Go down to the cooking school and they will show you all about it. Call for Miss Cooper in the Dietitians' Office or some of the other dietitians there and they will tell you all about it.

Q--How long after making a change of diet should one be able to get rid of the germs of putrefaction?

A--Well my friends there is the rub. The trouble is to get rid of them at all. It is a perpetual fight, a fight every day of your life. One wrong meal, one single deviation from the right road would be enough to reinvade, to reinfect you, to start all over again. Suppose you just one day neglect to make the bowels move three or four times. That is enough to start the whole trouble all over again because some of those germs are always left there, just enough to start the trouble again. If you ever kept a hotel and got infected with cockroaches, you know something about what it means. You never can kill the last roach. You have got to kill the last roach and the last egg, then some neighbor will come in and bring some more or some box of goods will come from Chicago and a whole lot of these Big Chicago bugs will come along with it and they will start a new race you see, so you have got fight coakroaches forever and you have got to fight colon germs forever as long as you live. We are infected when we are babies. I saw a baby a couple of weeks old the other day and the parents are trying hard to see if they cannot keep that baby from getting infected.

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Every article clothing it wears is sterilized. The nurse is not allowed to touch the baby without thoroughly sterelizing their hands. The bady has to be treated as though it were subjected to a surgical operation all the time. They are never going to kiss that baby in its mouth. It is going to be protected thoroughly and it will be very interesting to watch whether how it escapes all these the rest of us have got contaminated with.

Q. Do you think it is safe to have flies around?

A. No indeed. Flies are dangerous. The typhoid fly is one of the worst pests of our civilized life. They are all dangerous.

Q. Name some good authority on autointoxication which is not so technical as Combe.

A. I don't one that is strictly untechnical. I stand up here as a ----- and try to tell you all I know about it and put it in just untechnical form as I can. Unfortunately this subject is not popularized as it ought to be but if you will take the Battle Creek Idea and keep track of what is said in that and in the little journal,"Good Health", I think you will get all that is known on the subject. At any rate, all that I have been able to find out, and we are searching hard all the time to get some new information but I may say that doctors everywhere are becoming convinced of the correctiveness of these jews,Combe and of _Bouchid__. The German doctors for a long time opposed the teachings of Bouchid and-I think largely because it came from France. Germans do not readily accept things that come from France and the French do not readily accept things that come from Germany. The old war still exists to some degree but at last the German authorities have come to recognize the importance of this question. In less than 6 months an article by VonNoorden has appeared on the subject of intestinal auto intoxication. He pronounce autointoxication. It is too long and hard a word but he describes intestinal auto intoxication in exactly the same terms as Combe, Bouchid and

others describe intestinal autointoxication. It is all the same thing. One of the doctors [redacted]w this article by Prof. VonNoorden one of the greatest living physicians was telling all about the article the other day and he said, Professor VonNoorden described my patient exactly. I have a patient in the house now whose case is exactly described by VonNoorden.

Q. Which is the best Yogurt culture, Yogurt tablets or yogurt the buttermilk?

A. Yogurt tablets and Yogurt buttermilk are very much alike. They both contain the bacillus Bulgaricus. The yogurt tablets contain in addition the glycobacter. This glycobacter has to be prepared in a special way and is prepared in tablets. The glycobater is a sort of ------- or a kind of a family ------ for the bacillus bulgaricus. The bacillus bulgaricus cannot live in the colon because there is no sugar for it there. It must have sugar and the sugar is all absorbed in the small intestine up here before it gets to the colon but we want the bacillus bulgaricus down here because here is where the putrefaction is but the bulgaricus dies out when it gets into the colon and then it cannot make acids because it has no sugar. The Ismelites could not make brick without straw and the Bulgaricus could not make lactic acid without sugar because sugar is what they make it from. The glycobater is the germ discovered by Metchnikoff and Wallman by which some portions of starch which get into the colon are converted into sugar and the sugar is made into a ----- where the bacillus bulgarisuc wants it so by combining these two germs together the glycobater the sugar maker the bacillus bulgaricus which converts the sugar into acid, we have a happy combination. I think the bacillus bulgaricus is at least 10 times as useful in combination as the Glycobater as when taken alone. We are fortunate in being able to introduce it into this country. I fortunately have very direct connection with the Pasteur Institute where this discovery was made. One of the colleagues of Prof. Metchnikoff was consulting bacteriologists to

this institution. ~~I sent~~ As soon as I saw the accouncement that this discovery had been made I called upon this prof. for a sample and he got the sample and sent to me with full instructions about producing it here in this country and we have been using it here ever since and with most excellent results.

Q. Have the skins of a baked potato any food value?

A. No. They give us some bulk but they rare too much like paper to be really tolberable. Bran is preferable to potato skins for bulk, that is in small particlès.

Q. What effect does Radium have on colitis?

A. In Germany it is much used for colitis and it is claimed with very great results have been produced by it. When it is combined with so many other things we cannot say for certain that it cures colitis but certainly we find favorable results in cases in which it is used.

Q. What is the difference between a laxative and a cellulose diet?

A. A cellulose diet is laxative.

Q. What causes a polypous growth in the nose?

A. Chronic condition of congestion of the nose causeng too much blood in the part so the mucous membrane takes on an over-growth. Sometimes you see a man with a rum blossom . Whiskey causes the nose to be red, Having too much blood in it. It grows too big for the rest of the face and that makes the rum blossom and the polypous is sort of a nose blossom or catarrhal blossom instead.

Q. Why do you recommend the yolk of an egg?

A. Because it is the digestible part, the most nutritious part, and the food part. The white of the eggs is the part that makes feathers, that is convertedinto the chicken, into the chieken itself while the yolk of the egg is the lunch put up for the chieken while in the shell and it cannot get at anything else.

Q. Can the system take up lime when placed in the drinking water?

A. No, not to any great extent.

Q. Is there in your opinion any help for one who is very forgetful due to brainfever which occured some 25 years ago.

A. Memory training would be of value in such a case. Regular practise in memory gymnastics Practise in the correlation of words and names would be found beneficial.

Q. Is the acid of the stomato good for rheumatism?

A. Yes it is citric acid, the same as the acid of the lemon and the orange. It is once supposed that the acid of the tomato was oxalic acid but this is a mistake. It is now known to be citric acid the same as the acid of the lemon.

Q. What causes acne?

A. The most common cause is inactivity of the bowels, constipation. The body is swarming with toxines and the resistance of the body is lowered and the germs upon the skin work in, work their way down around a little hair shaft, get into the hair follicles; grow and produce their poisons which sent up inflammation there and that is the cause of acne.

Q. What is the number of red borpuscles that may be present in a case of pernicious enemia?

A. They are sometimes reduced down to five or six hundred thousand, one tenth part of the normal amount.

Q. What causes hives?

A. Usually poisons absorbed from the intestines. Autointoxication is the most common cause of hives. That was discovered by DeJardian-Denatuz more than 20 years ago.

Q. What is the objection to using sweet milk?

A. I don't altogether object to it. A couple of hours ago I prescribed a glass of sweet milk one hour and a glass of buttermilk the next hour, to be alternated as they are. In some peculiar cases milk seems to be

an -------- remedy. Many people however, find that milk doesn't agree with them and but produces inactivity of the bowels, headaches and symptoms of poisoning. The body has somehow become sensitized to the smallamount of poison in the milk. There is poison in milk, eggs and meat. There are special poisons in the flesh of different animals. There is a poison in mutton that is not found in beef. There is a poison in fish that is not found in other forms of meat. This- Beef seems to have less of these special poisons than some other meats. Duck's eggs contain more of these poisons than other eggs. The eggs of some birds are particularly poisonous. For most persons these posions produce no effects unless thebody has become sensitized to them. It is exactly like the poison of the rag weed palm which does not effect most people at all but some people become sensitized to this poison, then the smallest amount of it will bring on an attack of hay fever. Now there are people who become sensitized to the poisons of meat in the colon, in the same way. Then this --------degree of constipation or inactivity of the bowels will cause headaches because they become sensitized to these poisons. This is what is known to physiologists as anaphylaxis a newly discovered condition. For instance, to illustrate it, here is an experiement performed by Dr. Vaughn of the U. of M. of Michigan. Dr. Vaughn injected a couple of ounces of the white of an egg into the body of the guinea pig. The guinea pig is just as well as ever, showed no bad effects at all from it. Two weeks afterwards he injected a a few drops of the white of an egg into the same guinea pig and it died very promptly. It had convulsions and all the symptoms of terrible poisoning and in a short time was dead. That experiment has been repeated several times and it proves out every time. That is anaphylaxis. A thing apparently so harmless as white of the egg contains enough of these poisons to produce these deadly effects. This is true of the tissues of every animal in relation to every other animal species. It is not true of animals of the same species but of different species.

The body of each species is sacred. It is defendéd against the bodies of every other animal by these ----------, these subtle pdsons which render the flesh poisonous to other animals. There are certain fish that contain so much of these poisons they cannot be eaten at all as I suppose everybody knows. That is one reason why a flesh diet and why milk and eggs are not the very best food and they are not natural human foods. This is, cow's milk is natural food for calves. It is not food for others. A French professor fed cow's milk to dogs and they all died unless they were fed something else. Guinea pigs die and most animals die if fed on ~~a~~ the milk from another animal. They must have something else besides. Cow's milk is not good milk for babies. Thousands of babies are killed by cow's milk. It has to be modified in various ways to make it all safe and even then it is a risky thing. It is perhaps the best diet we can provide for children under some circumstances but it must be modified. We must add water to it and it must be diluted very considerably and we add malt sugar or milk sugar to it also.

Q. What quantities and for what length of time should Yogurt be taken to get the best results?

A. In order to keep these germs subdued ~~we have~~ you simply have to keep right on doing it , right on taking it. The Bulgarian gives his son Yogurt buttermilk every day of his life. It is one way in which he keeps himself so hearty.

Q. Would the fact that certain human beings act so much like a monkey have a tendency to strengthen a belief in the Darwarnian theory of their relation?

A. I have never offered that argument to prove that monkeys are our relatives but I remember a very fine gentleman who some years ago gave a lecture on evolution and he said, "The positive proof had recently

appeared of the correctiveness of the doctine of evolution and that is that man has somehow worked himself up from the monkey state to a perfect human state of civilization and enlightenment and the proof was that up in Wisconsin there was a certain lawyer who had developed the features of the monkey and a thick growth of wooly hair appeared all over his body and he was beginning to act like a monkey. He looked like a monkey. In other words he was going back to the monkey stage from which we all came originally. I never undertook to verify this man's statement but he peddled it out all over the country at any rate. There is absolutely no proof of this because we find that one of the characteristics of the monkey when we study the monkey is, it has no chin so if you find a person with no chin or very little chin his physiognomy has a resemblance to the lower order and when you take that tabs of people who have retreating chins they look more like these lower creatures. It is a low type of physiognomy, a low type of human being. If you every say a very pronounced idiot you will remember that there was no chin or very little chin. That does not mean that everybody who has a small chin is necessarily an idiot or a monkey or an idot by any means but it is characteristic of these lower orders that the chin is deficient.

Q. What Meneniers disease?

A. It is a disease of the labyrinth of the ear in which there is certain giddiness.

Q. Does too much salt harden the arteries?

A. Yes. Too much salt is bad.

Q. How long does it take one to free the system from nicotine when he has been well saturated with it?

A. The elmination begins right away if he stops putting it in. If a man stops the use of tobacco and drinks plenty of water and gets his skin active by vigorous perspiration, electric light baths or hard work or some other means the nicotine ought to work out in a course of a few days.

Q. Will a hyperacid stomach sget to be a hypo?

A. It is possible persons who have fevers generally have hypo or too little acid.

Q. What is autointoxication?

A. It is simply poisoning of the body by poisons formed in the body, usually in the intestines through putrefaction.

Q. What objection do you have th the use of Postum?

A. I have no objection to the use of Postum. I do not use Postum because I like Minute Brew better but I offer no objection to it.

Q. Does drinking too much water ever cause hardening of the arteries or have injurious effects.

A. No it might produce injurious effects if you drank so much as to distend over the stomach especially at meal time.

Q. How much water should people drink a day?

A. At least three pints. Most people should drink twice as much to atone for neglect of the past. Most people go day after day and week after week without drinking a drop. If we live the an active life this is especially true of sedentary people and the poisons in the body, the liquid fluids of the body become stagnant. You know what has happened to a stagnant pool. It get very filthy. The water stands and it becomes very filthy. If we do not drink enough water our bodies get very much in the same condition. If we live active lives in which we sweat a great deal our bodies would demand more water and we would drink more but if we do not take this vigorous exercise we must drink to wash our interiors just as we wash our face and hands in order to feel and to know that we are clean. We do not wash our faces and hands because they feel bad necessarily. It is because we want them to be clean. We take baths because we want to be clean. One can live if he does not take any baths at all. I meant a man in Chicago who said he had not had a bath for forty years . I am ashamed to say he is a doctor too.

This is not a thing to be recommended yet it is possible for a person to live, so what we wash ourselves for , our face and hands and feet and take baths for is because of our natural instinct to be clean. Now we forget it is just as necessary to wash the interior as the outside of the body. A great many people wonder why their skins look dirty when they scrub them so hard to make them clean and why they have a personal odor which is offensive then they take a great deal of pains to make their skins clean. The difficulty is they do not get clean inside. If you work hard and sweat profusely that is a natural cleansing process that will compel you to drink but if youdo not work hard you ought to drink from essential beauty from three pints to a gallon of water every day. A glass of water is a good prescription for a great many chronic invalids. I met a young man from Chicago who had been to see Dr. Billings sometime ago and I said, "What did Dr. Billings tell you." "The Man had Bright's disease." In consequence of his evil habits and he said, "Dr. Billings told me Ibetter not eat any meat and I should not take milk only as buttermilk and should drink a gallon of water every day and should live outdoors but that I must not smoke any more." "Well" I said, "That's pretty nearly what I should have said to you. I don't think I can say anything better."

Q. What is the objection to the use of salt?

A. We don't object to a little grain of salt but the abuse of it is objectionable. It has a tendency to overworks the kidneys, hardens the arteries, produces a tendency to hyperacidity of the stomach and it is a disturbance to the liver.

Q. If a person has stiffness in the knee cap does that necessarily indicate the presence of uric acid?

A. Stiffness of a joint does not mean necessarily uric acid but means a disturbed condition of the nutrition which is probably leading on toward rheumatism.

Q. Is diathermy or Radium good for arteriosclerosis?

A. Both are good, Radium internally and the Diathermy externally. The Diathermy even lowers blood pressure 20 or 30 points, sometimes as much as 40 points, in 15 or 20 minutes application.

Q. What is the cause, prevention and cure of baldness?

A. That is yet to be found out. The cause is really lack of nutrition, failing of the nutrition of the scalp, lack of the blood supply; sometimes due to parasites which find their way down around the roots of the hair. The real reason why the hair falls out is because the roots of the hair is not strong enough to hold it until it reaches its proper length. A person gets bald when the roots of the hair become so weak that the hair falls out while it is still very short, a quarter an inch long or half an inch long and after while complete atrophy takes place.

Q. What kind of food does the fast growing boy need?

A. Just natural food; grains and nuts and vegetables and fruits and outdoor exercise enough to give him a good appetite. He should have no meat of any kind, no condiments of any kind and Nature will take care of the rest of it by giving him an instintive reading toward the things he needs.

Q. What should he eat in place of meat?

A. He doesn't need anything at all. Cut meat out of the bill-of-fare and eat what is left and you are all right. You don't need to worry at all about that. There is an abundance of protein in the foodstuffs that remain. In such foodstuffs as bread there is more protein than we need and some to throw away. The potato has almost enough. Inmuts of all sorts there is a great abundance of protein more than we require. Peas and beans contain twice as much protein as is needed. They contain no uric acid to speak of. Vegetable protein is more easily digestible than animal protein but I have reached the bottom of the box. Be sure to sleep with your windows wide open tonight. I thank you for your attention. (End)

Feeding in Fevers--No.3.

A Lecture to the Sanitarium Nurses' Class at the Sanitarium Chapel, Monday, March 17, 1913 at 3 p. m.

by

J. H. Kellogg, M. D.

As soon as a rat dies the colon germs in the rat throwed out into the tissues of the rat and so denote decomposition. That very same thing happens to every animal that dies. If a man dies, he smells just as bad as a dead rat will. It is the same dead rat smell because man is an animal. If a cow dies or a hen or any other creature it is all the same thing. The germs that are in the colon are all alike. The kind of germs found in a rat's colon are just the same as those found in a man's colon.or a pig's colon because man lives on the same diet as the rat or the pig does. There ought not to be any germs at all in the colon except friendly germs.

Prof. Metchnikoff in his Paris laboratory has a cage in which he has some flying foxes or flying squirrels. These animals have fecal matters that contain no germs at all. That is the proof that an animal can live without having germs. There are those squirrels there that have no germs at all in their fecal matters, and, down in South America there is a parrot that lives on bananas and it has no germs whatever in its bowel discharges. A healthy baby has no unhealthy germs, no putrefactive germs, no poison-forming germs. It has no objectionable germs at all in its bowel discharges. When a doctor goes to examine a baby, the first thing he wants to see is the baby's napkin and he makes an examination of it, smells it. If it ~~[illegible]~~ has a slightly sour smell, he knows the baby is well because that is simply the natural condition of the baby's alimentary canal; but if it has a putred smell, a dead rat smell, then the baby is sick and he knows it is sick because the wrong kind of germs, wild germs, meak germs as Prof. Herter calls them has gotten into that baby's colon and are producing putrefaction there and are poisoning the baby and the baby will soon be sick, it is sick already.

Now a fever patient has got all the trouble he can bear at present without having any unnecessary troubles and if we give him meat the meat will, a small part of it, be digested and absorbed but a greater part of that meat will be left in the colon to rot and the same thing will happen in that man's colon ~~s~~hat happens in a closet where there is a dead rat lying around or a piece of dead hen or dead hog or dead ox lying about in a man's colon rots just as much ~~as~~ or just as bad and gets just as rotten and smells just as bad as the dead rat in a closet, don't forget that. That is the ~~m~~ason why we should not have meat for fever patients. This applies just as well to eggs, because eggs decay in the intestine just as quickly as do meats; but if you think best to give your patient anything in the shape of eggs at all, do not give scrambled eggs or poached eggs or anything of that sort but give the patient the yolk of a hard boiled egg or the well beaten yolk of an egg. Don't give them the white of the egg. The white of egg has very little food value in it. The yolk of egg is the thing that will be best for the patiant, Well beaten up or a hard boiled yolk chewed well, but I would recommend no eggs at all. Milk has been recommended for one hundred years, perhaps, as a special diet for fever patients.

When I studied medicine, one of the symptoms of typhoid fever was great gaseous distention in the colon, especially on the right side in the cecum, enormous distention of the colon and diarrhea with ochre colored stools. Now it has been found in recent years that it is the milk diet that makes those symptoms, ~~T~~he putrefaction and fermentation of the milk and it is not ~~t~~he disease itself and the ochre colored stools are due to the same cause. In connection with this tympanites and this diarrhea there is a rise of temperature. Why? because the curds are not well digested. The fever patient cannot digest casein because it is protein and there is almost no hydrochloric acid produced in fever. There is hypopepsia or apepsia so the digestive fluids necessary for the digestion of cas~~e~~in are not there and the curds lie in the colon and rot and putrefy and gases form, the Welch's bacillus develop~~x~~ and the patient's fever is made worse. I suppose you have studied bacteriology, then you know that milk is a good culture medium for typhoid fever germs. Then what is the sense in selecting for

food for the typhoid fever patient, the very thing in which typhoid fever germs grow with the greatest readiness. So you see it is an absurd thing to give ~~a~~ a patient a milk diet for typhoid fever. If you are going to give milk in any form, it should be in the form of buttermilk and not in the form of ordinary milk, because in the form of buttermilk we have the ~~xx~~ lactic acid bacilli which antagonize the typhoid fever germs and render it difficult for them to grow. But as a matter of fact, milk is not the best diet for a fever patient anyhow. Carbohydrate food stuffs are the best dietary. Milk can be dispensed with altogether. Now mushroons, pickles and preserves we would discard because they are hard to digest. They contain no nourishment to amount to anything. They are unwholesome for anybody, sick or well, so things of that kind must be entirely discarded. Condiments of all sorts must also be excluded because they tax the kidneys and the liver and increase the irritation. Cheese ought to be excluded for the reason that cheese contains putrefactive germs and molds and their being no hydrochloric acid in the stomach, there is nothing to dininfect the cheese so these actively growing germs that are always present in cheese are carried right on down into the intestine, grow and develop and add to the mischiefs that are already existing. Exclusively cooked foods must be avoided in typhoid fever for the reason that uncooked foods contain something essential to the welfare of the body. You know sailors sometimes, when out on a long voyage, get scurvy. The great reason why they get scurvy is lack of fresh vegetables. It is customary now a days to require all ships going on long voyages to take a supply of preserved lime juice. This lime juice is found to be an antidote against scurvy. It is a preventative of scurvy, but it is found that lettuce and celery and any such thing of that sort is also effective. Potatoes are of great value and all the green vegetables are helpful. They contain a large amount of the salts that are required by the body. Of course, the cereals contain salts also, but the salts contained in vegetables are different from those of cereals. There is a large proportion of alkaline salt. When you get a fact and get a reason for the fact, you ought always to remember that thing. You ought never to forget it because you know the reason for the fact. The

things we learn parrot like we expect to forget but when you know the reason you ~~xxxxxxxxxx~~ ought not to forget it. Babies fed on boiled milk get ~~xxxxx~~ scurvy and get rickets. Fever patients fed on gruel or cooked food of any kind exclusively, may get into a state of mal-nutrition for the same reason so it is very important for the sick patient to have something fresh and there are various fresh things that can be given to these patients. We must avoid by all means an exclusive diet of cooked foods. Never try to carry your patient through a long siege of fever on oatmeal gruel or corn meal gruel or any other kind of cooked food. They must have some uncooked food of some sort. Salt foods of all kinds must be discarded. Here are some wholesome foods for ~~xxx~~ fever patients and one of the most wholesome of all foods is fruit juice. This must be prepare1 from fresh fruit. Welch's grape juice won't do because it is cooked in order to preserve it. However, it is not boiled, it is not cooked at a very high temperature and it is a great deal better than cooked gruel or anything else than has been boiled. Welch's grape juice is preserved at a temperature of about 160 degrees and that temperature does not harm the ingredients of the food as a higher temperature does. Recent experiments made in the University of Norway and ~~xxx~~ reported at at the recent Internationa Congress on "hygiene" at Washington by the professor of physiology at that university show that the long boiling of food and particularly the cooking of food at a temperature above boiling,--that is what he found in canned foods of all kinds, all kinds of canned foods are cooked at a temperature of 220 to 240 degrees and foods that are cooked at that high temperature are much more damaged than those cooked at a boiling temperature and the lower the temperature at which food is cooked ~~xxxxxx~~ the less injury to these delicate little constituents of the food which render uncooked food preferable to cooke1 foods. You must remember all the time that man like every other animal has a right to go straight to the vegetable kingdom and take the products of the earth just as they are produced by the earth and find in them the very best possible sustenance for the maintenance of his body. What would you say of a horse of a species of horses that could not live without

cooked food. You would say, it was monsterous the idea that there could be such a thing as a species of squirrels that had to have their food cooked. Nature has provided for man just as for horses, cows, squirrels and birds, the natural food, the natural products of the earth, and when a man lives upon such a diet provided he makes a careful selection of his food stuffs, he provides himself with the conditions best possible for most perfect nutrition. So when a person is suffering from a fever, he is reduced very low; his vitality is low, his body is laboring under a very great burden and he needs the very best possible conditions and if there is any advantage to be derived from uncooked food stuffs, he needs just that advantage. He needs every little help he can get. Just the smallest little difference in the food or the diet you give that man might be just enough to turn the scale, you see, because in the long course of fever, there will come sometime a day when that man's life is just weighed in the balance. It may tip the scale one way or the other, so subtle is destiny. So it is of the greatest importance that we should provide every possible advantage for the sick man who is making a battle for his life. One of the most important things as I am telling you is to give him fresh foodstuffs and the juices of fresh fruits are perhaps better than anything else we can give him. They contain very little protein and a large amount of carbohydrates in the form of sugar and vegetable acids. That is true of all these fruit juices. They consist chiefly of carbohydrates, sugar and fruit acid. They contain a small amount of protein but the amount of protein they contain is enough for immediate necessity. When the body is not making use of protein to any particular extent, if you feed an amount of protein, his body cannot utilize it, it cannot digest it or assimilate it. The body can make very little use of protein in fever. If there is any time the patient needs practically no protein at all or very very little, it is when the patient is suffering from fever, because the body cannot utilize it and is damaged by the least bit of excess. Prof. Folin the professor of physiologic chemistry at Harvard University, Boston, said a couple of years ago in my hearing, "That in feeding your patient, you need not

have any considerabion for protein only be careful not to give too much. That in making dietetic prescriptions for your patient, you need not give any consideration at all to the protein, only to avoid giving too much because all natural food stuffs contain enough protein to meet the body needs." He himself lived for two-weeks taking no protein at all, doing his usual work, working hard all the time, excluding protein absolutely. There was not a particle of protein in his food for two weeks and he did not lose a particle in weight or strength. At the end of the two weeks he was in every way as perfect in condition as at the beginning. He could not live that way forever, but you can see if a man in health going about doing hard work can get along without protein, it is perfectly save to drop the protein out of the diet of the fever patient. Such a patient can be carried almost exclusively on fruit juice alone, fresh apple juice or orange juice I think is the best of all. You can get oranges at all seasons of the year. You can always get apples in this climate. Apple juice is not so easy to make but with a little apple press it is quite easy to prepare to make fresh apple juice. We have fresh apple juice on our tables a large part of the year, freshly prepared, prepared every few days and kept in cold storage. It should not be fermented at all because then it contains alcohol. In the absence of apple juice or orange juice we might use the juice of grape fruit. That is very excellent indeed, if you get grape fruit that is not too acid. Lemon juice can hardly be used as a food because the acid is so strong you have to use so much sugar that you cannot give enough of it to get any very great benefit from it, but a thing like the orange juice, the great benefit of the orange juice to the patient, is the sugar in the orange juice. The acid itself contains comparatively small nutritive value. You cannot depend upon that, but it is the sugar in it and so with the apple juice. Watermelon juice and cantelope juice, raspberry juice, these are most excellent. There is nothing better for a fever patient than raspberry juice. The raspberry season is very short but you can obtain dried raspberries at any season of the year, and the way to use them is to put a pound of raspberries in a gallon of water, let them soak over night, then in the morning heat them to a temperature of about 150 degrees, a little below the boiling point for an hour

or two and that will extract the nutrient material. squeeze it out and that with the addition of lemon is really a very excellent thing. Of course, the amount of nourishment is small and you will need something more. Then there is purees and fruit soups. Fruit soups are a most excellent method of presenting fruit to the patient. It is one of the very best foods.In Germany for a hundred years fruit soups have been the favorite food for fever patients, and Prof. Niemier who was one of the greatest German physicians of the last generation,-when I was a medical student his name was the greatest of all in Germany dealing with fevers. Prof. Niemeier prescribed fruit soups as his favorite food for the fever patient. In Germany the fruit soups are very common. In this country they are not much known. Go into a restaurant in Germany and you will find blueberry soup, raspberry soup, current soup, apple soup and all sorts of fruit soups. I am not going to tell you how to make them because you are going to have some lectures that ~~xxxxxxxxxxxxxxxx~~ will be more interesting after awhile by our dietitians. I want to get before you, first of all, the need and then they will tell you how to supply the needs. These fruit juices have been prepared from dried fruits, dried apples, dried peaches, dried plumbs, prunes, raisins, and all kinds of dried fruit, and you get from them essentially the same benefit you get from fresh fruit. So long as they have not be exposed to a high temperature and have not been cooked, they require to be soaked a long time, twenty-four or thirty-six hours. Put them to soak tonight, for instance, and by day after to morrow morning they will be ready for use. They should be soaked in cold water for a long time to get the dried material into a soluble form again, then by means of a proper press, the juice can be expressed. Prunes become almost as good as fresh plumbs when soaked for a long time in cold water. You will be very much surprised to see how tasty they become by simple soaking. They should be soaked in just what water they will take up because if they are soaked in an excessive water, the juice will be diluted and they will have a flat flavor. They should have just what they will absorb and no more, otherwise the nutrient material will pass out into the water and will be lost or diluted until it is insipid. These dried fruits may be made into puree with very slight cooking or without

any cooking at all. The banana puree is a very excellent food for a fever patient. The only objections to it as to most other fruits is the fact that there is very little residue left. The banana has almost no cellulose. Banana puree can be very easily made by putting the banana through a colander. The skin of the banana should be brown. The bananas you find in the stores are not fit to eat usually or if they are the skins will be brown. Down in the tropics they never think of eating a banana until the skin is very brown

V-D

Dietetics for Nurses---No. 3.

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The yellow or red skinned banana is never eaten. It is hung up until mellow it gets brown and then it is luscious like a peach and is easily digestible but we should remember that the banana has no substances which can be digested in the stomach. There is nothing in the banana which the stomach can digest. It is carbohydrate almost entirely; has only a very small amount of protein and there is nothingthe stomach can digest. It pontains practically no starch, the ripe banana, and there is nothing the stomach can do to it. It must be completely disintegrated in order that it should be passed out of the stomach into the intestine where the digestive work may be done. Another puree that is very good is green corn. This is a very excellent thing and fresh green vegetables. Green corn, lettuce and cucumbers may be put into forms of puree and by being properly flavored, for instance, lettuce flavored with lemon juice in the form of a puree can be taken with great advantage and even cabbage may be ground up very fine and brought into the form of a puree so it will be entirely wholesome for the patient and be beneficial to him. The cucumber also may be used but great care should be taken that none of these things are swallowed without proper mastication. As for cereals rice is the most excellent thing for the patient whose stomach is very irritable. The rice however, must be cooked with a considerable amount of water and well stirred until it is well broken up because the rice grains cannot be well digested. When the patient's mouth makes no saliva it is dry and his stomach is almost as dry so instead of giving the patient rice in the ordinary form the rice must be stirred and the grains broken up so it is really reduced to a form of gruel or puree. That is not the way you would ordinarily fix rice but that is the way you would prepare it for the fever patient who is in so bad a state that he requires rice. I should

mention the purees of other vegetables, potato puree, mashed potato puree and all kinds of vegetable purees, turnip and carrots. All of the vegetable purees are very excellent for fever patients because they contain the kind of salts which are very useful in these cases. Various flakes of all sorts, wheat flakes, corn flakes, rice flakes, are all excellent. Gruels prepared from oatmeal and cornmeal, especially granola and gluten gruel and rice meal gruel are to be recommended. Among the most important of all foods for the fever patient I must mention malt sugar and maltose. It does not require the action of saliva. It is already to be asorbed and assimilated at once. In passing through the mucous intestinal membrane a further changes will be effected into x dextrose so maltose or meltose is one of the most available of all foodstuffs you can give a fever patient and the meltose may be given by itself, one ounce in a tumblerful of water. One ounce contains for nearly 100 calories, about 86 calories if I remember rightly so it is very easy to figure. An ounce of malt sugar, well a heaping Table teaspoonful. You can practically call 100 calories. The dietitians will tell you more about that. In this way it is an excellent thing to add to fruit juices to sweet the apple juice, or the lemonade or the grape juice or another fruit juice, to sweeten with malt sugar you can get any requisite number of calories. By the way, how many calories does the fever patient need? He ought to have from fifteen hundred to twenty-five hundred. Don't forget it. It prevents the emaciation you see and that is what we are feeding the fever patient for and it lessens the fever. Now it is possible also to prepare from nuts some things that are very good. Blanched almonds are good. If the patient can chew them ~~is not feeling~~ well then he may have a few blanched almonds but these patients won't chew them if they are very sick so the nuts must be ground into a paste and by adding the paste or almond butter you can work it into almond cream which is really a very delicious product and is very excellent for the fever patient especially for those who cannot eat milk. Then we have malted nuts which is really better for the fever patient

than milk because it contains ~~-no-casein----~~ and is a complement to the dietary. We need always some fats of various other things and Malted nuts is a ~~very~~ most excellent thing. It can be used in the proportion of about one part to seven of water and that will bring it to about the consistency of milk. It then passes quickly on into the intestine and does not burden the stomach. Sometimes the fat and protein the body requires and may be used to very excellent advantage.

End of this lecture.

V-M

Question Box Lecture at the Battle Creek Sanitarium Parlor, Thursday, March 27, 1913, at 8.00 P. M. By J. H. Kellogg, M. D.

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Q. Do the eskimos or people who live in coldregions of the world suffer as much from their large meateating as those who live in a warmer climate ?

A. No and there is a good reason for it. In the Arctic regions there are practically no germs and the chief trouble ~~in~~ with flesh food is not that it is flesh but that an excess of protein is eaten and this excess of protein cannot be assimilated. It can not be appropriated by the body. Now when one takes more starch than he needs(Nature) the body stores it up. The loose space underneath the skin. You know the skin is loose and you can get hold of it and move it around. That loose space underneath the skin is one of Nature's gleaneries where the corn, the wheat, and rye, and barley and all kinds of farinaceous material are converted into fat and stored up underneath the skin in the form of fat. That is why pigs get so fat on corn and that is why an ox will get fat on corn. You never heard of fattening an ox or pig on beefsteak, did you now. You could not fatten them on beefsteak. There is nothing in beefsteak to make fat but the stach may be deposited in the body and stroed up for future use, residual or reserved tissue as it is called, but protein is the lean of meat and the white of egg and albumen in all its different forms is an entirely substance. It cannot be utilized tomorrow what you eat today. What you eat today must be used today and it won't keep until tomorrow. That is ~~very~~ characteristic of flesh meats generally isn't it? If it is not eaten right away it is spoiled. It is exactly so with the body. It cannot be appropriated. ~~with~~ It cannnot be used ~~in~~ _____. Any surplus you eat more than you need for today's use spoils on your hands.

v-m

It putrifies in the colon and this putrefaction process that results from exposure to processes of decay within the body of this surplus, unusable material is the source of a great share of our chronic ailments. The colon is a vertible Pandorahs's box out of which pour a whole procession of the most dire, distressing and incurable ailments. when they are once advanced to their latest stages . This is due to germs. The eskimo escapes most of these troubles because he does not have germs in his country. In this country there are plenty of germs and in tropical countries there are many more germs and in tropical countries people learn that by instinct to avoid flesh meats to a very large degree. There is one very significant fact in connection with the matter of diet that I would like to impress on every audience when I get an opportunity to present it and that is this, that man is belongs as an animal to the class of animals that are not meat eaters. Now,if you are acquainted with a horse you know what his diet and habits are and you find another animal that has the same structure as the horse you would expect that he would have the same diet. For instance, you see for the first time perhaps, a mule. Suppose you have never seen a mule before. You have seen donkeys and horses but have never seen a mule. You would think it was a very extraordinary thing when a donkey's diet is hay and grass and grain and a horses diet is hay, grass and grain/ if you found a mule was living on beefsteak or animal flesh of some sort. You would know right away when you first saw the mule that he would naturally live on the same sort of diet as the horse or a donkey. He has the same sort of teeth, the same kind of liver, the same kind of stomach and the same kind of feet. His general aspects are the same as other animals or the similar kind, The same as those of horse kind, so you would expect that animal would take the diet the other similar animals eat and you would expect him to eat like a horse. You would not expect him to eat like a lion because he did not belong to the lion class. Now this sampe principle applies to man. Man is

a primate. He belongs to that class of animals that are known as primates and other examples are the gibbon, the baboon, the chimpanzee, the orang, the gorilla, these are all examples of primates and when we examine their teeth for example, we find the teeth of man, the gorilla, the chimpansee, the orang; we find orang and the man having teeth that are practically identical. The only difference is that the so-called canine teeth are a little longer in the gorilla and the chimpanzee than they are in man so if they indicate a meat diet for man they must indicate still more a meat diet for the gorilla because the teeth are much longer in the gorilla and larger than they are in man but they do not indicate a meat diet for either class of animals. They indicate simply that they are to be used for tearing purposes. A man eats food that requires tearing as much as meat does.

v-m

Question Box Lecture, March 27 cont'd from page 5227.

For instance, a monkey find a cocoanut up in a tree and he has got to tear the husks off that cocoanut, so he needs tearing teeth, teeth as strong as any other animal needs for tearing flesh, to tear the rind off the cocoanut, so with other foods as they are found in the natural state. These primates require these teeth just as they are made for the diet to which they are adapted. I met sometime ago a lady who had been a nurse in the Samoan Islands at Apia, Samoa. This nurse told me she had often seen a baby and a dog and a chicken making a meal off the same cocoanut. These animals, these three individuals, the baby, a little boy two or three years old, a chicken and a dog could all live on the cocoanut. The cocoanut had everything in it that any of them needed. The difference between man and some of these other animals, is that man requires a special dietary. A horse could be fed upon a diet that is good for a man and thrive upon it. A dog can be fed upon food that a man eats and can live and thrive upon it. In fact, he is a better dog on a natural diet than on a meat diet, but a man cannot eat everything that a horse can. A man cannot live on grass and thrive on it or on raw corn or oats or any diet of raw roots. He could not live on such food, but the horse can live on what a man eats and a dog can live on what man eats, because the diet to which man is adapted requires less vigorous digestive apparatus than than required by the horse, on one hand and on the other hand supplies just the same sort of elements that are required by the monkey or the gorilla or the chimpanzee for their diet. So man is a primate and for man to eat meat is just as absurd as for a horse to meat. The horse belongs to a class of animals that does not eat meat and there is no exception to that class. There is not a single animal that belongs to the horse tribe that eats meats, not one, and man is the only example of all the animals that live in the world that belong to the class of primates that eats meat. Man has become a meat eater, not because he has climbed up but because he had deteriorated, not because he has ascended but because he had decended. He has gone down on all fores with the dogs, knawing bones and he does not belong there; he should be climbing trees after the

pears and peaches and nuts and fruits along with the monkey x, the chimpanzee instead of getting down into slime and the ooze and looking up an oyster or some other scavenger from the slime of the ocean bottom.

Q--What is the nature of glycogen?

A--Glycogen is animal starch. Now starch is a substance which is composed of three elements, carbon, hydrogen and oxygen. There are six atoms of carbon ten atoms of hydrogen and five atoms of oxygen. Now the only difference between starch and sugar is that the sugar has a little more water in it. Two molecules of H_2O are added and that gives us another form of sugar. Now the substance known as glycogen so called animal starch, is formed in this way. We eat starch. This starch is converted into sugar by the addition of water; then when this sugar reaches the liver, the liver takes the water out and makes starch of it again but it is a peculiar kind of starch that is found nowhere except in the livers of animals. It is a little different from ordinary starch but we have various kinds of starch anyway. Every vegetable has its own kind of starch and the gum you find oozing out on the side of a peach tree or the gum you use for sticking a label on to a bottle or to cause the adhesion of a postage stamp to an envelope, this gum has the same compositionx as starch. It is just the same thing as starch chemically only it is a different form, so this glycogen or animal starch that is found in the liver is starch in another form. The liver stores it up just as we store up coal in a big bin and then the liver doles it out to the body, a little at a time just as the body needs it, because this starch is fuel and this is a sort of automatic stoking arrangement. The body possesses which is extremely interesting. When the sugar comes floating in from the blood for the starch is digested in the alimentary canal, converted into sugar and this sugar passed into the blood. The liver takes this sugar out of the blood, stores it up xxxxxx it itself in the form of starch, but you say, "Why do you take it and reduce it down to starch again"? Because it has to be converted in to sugar to make it transportable. Starch is in soluble but sugar is soluble. The sugar can be dissolved by the fluids of the body and carried into the blood

and circulated in the blood; then when it gets to the liver it is converted back into the insoluble form of starch or glycogen and stores this up in its own tissue. Then moment by moment and hour by hour the liver redigests this starch and converts it back into sugar again and sends it on into the body to serve its purpose as a fuel, as a source of energy for starch is the special fuel of the body that maintains the fires of life. Protein is the repair material that builds up the worn out parts of the body. Fat is storage material to be stored up for use at some future time, but starch is the fuel of the body but that is the reason why we need very much more starch than of other substances. A person can live without protein for some little time but if you take the carbohydrate entirely out of the diet, a person begins to get sick right away. (Prof. Folin, the professor of physiologic chemistry in the great Harvard University at Cambridge, Mass. made this experiment a few years ago: He removed all the protein from his food and took for two weeks food which had no protein whatever in it and at the end of that time he had lost nothing in weight; He had lost nothing in strength although he worked hard every day. He went right on about his business; ate not a particle of protein for two whole weeks. Now if a person takes the carbohydrates out of the dietary entirely so that there are no carbohydrates at all and eats only protein, in a very few days he gets sick. In less than three days he begins to show signs of sickness and if he keeps on with that sort of diet he begins to show signs of very severe illness. A dog fed upon a pure meat diet gets sick. A dog fed on lean meat and nothing but lean meat is certain to become ill. No animal can live on a strictly lean meat diet, no animal. Every animal gets sick, even carniverous animals put on a strict lean meat diet with no fat and no carbohydrates at all, nothing else but just the lean meat will certainly get sick and die. No animal can live on pure protein but can get along without it comparatively well.) Now glycogen is very necessary in the body. The starch we eat is stored in the liver as glycogen and the liver converts it into sugar then it is carried to the muscles and in the muscles again converted into glycogen. The muscles store up some glycogen because the muscles use starch, they use energy and they must have a supply of energy producing material close at hand so while the liver stores up the great

mass of it, the muscles also store up a considerable part of it and some of it is stored in the brain, some of it is stored in the lymph glands and it is stored all through the body. Wherever an organ works some of this glycogen is stored up there to furnish material ready for use. It is like amunition. Everytime anybody contracts a muscle it is perfectly comparable to an explosion. There is a certain amount of amunition stored up in the muscles and an impulse from the brain pulls the trigger, so to speak, and off goes the gun. A manifestation of energy is really in the nature of an explosion to a wonderful degree. Every time the heart beats, every time a muscle contracts it must use a little glycogen and just as soon as all the glycogen is stored up in the heart muscle is gone, that heart must cease to beat, it can no longer beat. Just as soon as the glycogen of the body is gone, death occurs, so it is of the greatest importance when we have a person with certain diseases, it is very important to know just as soon as possible how much glycogen he has and how much power to store glycogen he has. For instance, a person suffering from diabetes, now the great trouble with this person, is he has lost his power to store glycogen. That is why he is weak, that is why he has this disease. He is not able to store his sugar. The starch is converted into sugar and passes into the blood but the liver cannot catch it and store it up as it ought so it passes right on into the blood and the kidneys won't allow only a certain amount of sugar in the blood, about three parts in a thousand, three or four parts in a thousand. We won't allow any more than that and when the amount of sugar is increased to five or six parts in a thousand, the kidneys begin taking it out so it may be discharged from the body. We had sometime ago, a patient who was discharging more than a pound of sugar a day. That was lost to the body that should have been used in the body itself and stored up for energy for work and for keeping the body warm, but it was all lost because this person's liver and muscles had lost the power to store glycogen. A very good illustration of this occurred sometime ago. You see how important it is to have glycogen. This person must eat starch and if he did not take a lot of starch every day in not having the power to store glycogen, he would very soon die. That is the difference between

a man who has indurance and a man who does not have indurance. A man who has indurance is the man who can store up a large amount of glycogen that will last over perhaps several days of fasting. Some people get so weak they can hardly get around in forty-eight hours if they do not have something to eat, but another person can go on for a week and not notice it because one person has a large store of glycogen and the other has such a small store of glycogen that it is lost in a short time. A very good illustration of this occurred sometime ago. A case of a young woman suffering from diabetes in charge of a large hospital in New England. An eminent Boston doctor was telling me of this case. This young woman was in good health apparently with that one exception that she suffered from diabetes. She had charge of a hospital as superintendent of nurses. She took a trip to Europe. In going across the ocean there was a severe storm and she suffered very much from seasickness. She vomited for two days, on the third day she passed into diabetic coma and died. Now that woman might have lived on for fifteen or twenty years if she had not taken that ocean trip. She did not die of seasickness, she did not die of vomiting, but she died because she was nauseated and vomited and could not keep any food upon her stomach so her store of glycogen was all used up. Now if she could have taken a little glycogen every day or had a doctor who knew what the cause of the trouble was, he could have introduced it by opening a vein and injecting some sugar into her veins and she would have lived but there was no one there who knew about that so the poor woman died. So when a patient comes here suffering from diabetes, the very first thing we do is to have made an examination with the respiration apparatus which tells us right off whether the patient has the power to store glycogen or not. Now the respiration apparatus gives us what is known as the "respiratory quotient". I do not know whether we have time to learn all about that or not, but I will tell you a little about it. Some of you will understand. When a person's body is burning starch or glycogen, the amount of oxygen or carbon dioxid that passes out of the lungs is exactly equal to the amount of oxygen which he takes in,--that is, if a person inhales a pint of oxygen, he will exhale a pint of carbon dioxid and the chemical

reason for that is this, that the hydrogen and oxygen in combination together are in just the proportion to form water. So when starch is burned, it is simply ~~[illegible]~~ flooded out and remains as water and the carbon and oxygen combine, forming carbon dioxid or CO_2, so a molecule of oxygen is O_2. Three of those atoms of oxygen take in an atom of carbon between them so that we have just the same volume of gas. The oxygen comes in, takes up the carbon and comes back again and it has just the same volume it had before. It does not change because gases all have the same volume at the same temperature at the same pressure. Now when a person is burning protein it is another thing, because in protein we have carbon hydrogen, oxygen, phosphorus, sulphus and nitrogen, all those substances in addition and some of the oxygen is used to burn up the phosphorus and sulphur and combine with the nitrogen, so we do not have so much carbon dioxid. Some oxygen is lost, more carbon dioxid comes back in oxygen, you see. The oxygen is consumed in other ways. So if we do not have enough carbon dioxid come back to account for all the oxygen, I should say that some of the oxygen remains behind. When we have fats Fat is chiefly carbon and hydrogen and the hydrogen combines with the oxygen and forms water and a good deal of the oxygen is used up in that way and we do not have an exact equivalent of carbon dioxid as compared with the oxygen which has been consumed. For instance, a person is breathing with the apparatus and he breaths in 100 ounces of oxygen and he breaths out 100 ounces of carbon dioxide. While one hundred ounces of oxygen is breathed in, 100 ounces of carbon dioxide is greathed out. Now if we divide the carbon dioxide by the oxygen, the result will be just one, that is what it will be. But now suppose we breath out 82 ounces of carbon dioxid and we divide that by 100 and instead of having 1 we have .82. Now in case it is 70 for example, the carbon dioxide and 100 of oxygen it would be .70. Now that is just what we find. When a man is burning pure starch or glycogen it is 100 and when he is burning protein it is 82 and when he is burning fat it is 70, so the respiratory quotient tells what the body is burning. Now the body always burns starch when it has got starch on hand to burn and it does not burn protein or fat unless it is compelled to, and so when we find the respiratory quotient down to 70, that means that all the glycogen of the body

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has been consumed and the body is compelled to eat its own tissues. The body is subsisting upon ~~xxxxx~~ fat and making glycogen out of fat in order to supply the heart and ~~them~~ supply the other tissues with the energy which they require. Now when we find a person then suffering from diabetes, we find a co-efficient of seventy, we know we have to do something for that patient right away and we begin earnest efforts and we are all of us rejoicing in having discovered that we can raise that quotient. We did not know that until recently because we did not have the apparatus with which this test could be made. I might incidentally remark that this is the only place in the world where sick people are treated where such an apparatus exists, for there are only two of these things in the world. One is at the Carnggie Laboratory in Boston and the other one here. This was made for our special use because we felt it would be of value in these cases and that is the principle which we have been following for a good many years. As soon as there is a discovery made in any part of the world that can be utilized to help sick people to get well we go right after it and get it regardless of what it costs. If we have to send a man half way around the world to get it we send after it, so when we found this discovery had been made at the Nutrition Laboratory we got the consent of the managers and sent one of our men who is most skilled in that sort of thing down to Boston to the Laboratory. He stayed there weeks and weeks and studied the ~~apparatus~~ apparatus, then came home and the last year has been occupied in making this apparatus. It is so delicate we could not get in the United States all the things necessary to be had for it. We had to have some of the things made in Stockholm and some other parts in Germany some other parts from France and so we got the differents from different parts of the world and it took months and months to gather up all the ~~se~~ different elements and months to combine into this somewhat complicated apparatus, but this apparatus tells just what the body is doing as regards food stuffs with the same accuracy that the thermometer tells what the temperature of the body is or the dynamometer tells what the strength of the body is and we find it an immense advantage. The other day a patient came in and we found his respiratory quotient was 67. You can

that
imagine ~~me~~ did not look very encouraging but in a week's time with diet and treatment to which this patient was subjected, we found the respiratory quotient came up to 73 so that man was lifted out of the hopeless class into the hopeful class, for 73 means that there is still a margin to work upon. When a man's quotient is 73 we know he is not burning fat; he is burning glycogen because if he was burning fat it would be 70 so it must be he is burning glycogen and has the ability to store some glycogen. If we give him his supper at 6 o'clock at night, then examine him the next morning at eight o'clock, that shows that he has the ability to store up glycogen for 14 hours; that he stored up at 6 o'clock glycogen enough when he took his supper to last him for 14 hours. Now ~~think~~ sometimes when we find the quotient as low as this, we have to feed the patient some carbohydrates every hour because he cannot store any at all. We would feed him some sugar or starch every hour. (It is important that everybody should know that in diabetes for starch is the most important element of food a patient can take. The idea has gotten abroad so generally and has become so thoroughly fixed in the minds of the public that starch is a dangerous thing for the diabetic that he must look out for starch. It has become so universal that it is very necessary that that wrong impression should be removed. The diabetic has lost his power to utilize as much starch as he ought to have but that little starch that he can utilize is more precious to him than the gold of ophir. He must have it or he will die and to put a diabetic patient on a non-starch diet as we all did twenty-five or thirty years ago, not knowing any better, is the most absurd thing in the world.)(I am sorry to believe that we doctors have killed a great many diabetics by our prescriptions and that thousands and thousands of diabetics lying in their graves today might have been alive if they had been allowed to eat anything and everything they pleased and had not seen a doctor at all or heard of one at all because the doctor said, "no starch" "No starch" you have not the power to digest starch and you must eat meat, you must live on a meat diet" and the patient cut out his starch as much as he possibly could but now and then his instinct would tell him ~~xx~~ he must have starch, you must have bread. His appetite would call for bread and he would break over in spite of the doctor's prescription and take

a little bread now and then and that is the only thing that saved his life. When the patient followed the doctor8s prescription he was walking straight toward the grave but when he rebelled and followed his instincts which are divine voices talking to us, each one telling us what we need, what we ought to do, when he followed his instincts, then he was getting salvation. Well it is very important to know about this and I hope you will tell everybody you know, any diabetic, that the diabetic needs starch above all other people. He must take care to get a proper amount of starch. Now it is important that you should not take too much. The ordinary amount of starch that enters into the bill of fare, is something like 1600 xxxxxxxx to 1800 calories. You know something about calories, all of you because you see the bill of fare every day and I hope you are pretty well acquainted with calories. I trust you are all taking care to count your calories and to note it down. We like to have you do that. We like to have you put down on your bill of fare just how many calories you are eating, then we find out who is eating up our victuals, don't you see. We know how to regulate the price of board. That is not the thing we are interested in, however. We find so many of our patients do not eat enough calories. That is the whole trouble with them. We are continually saying to our patient, "eat calories" and I look around here and see wam faces and people who need more xxxxxxx averdupois to be more handsome, and I wish I knew some way in which I could make you eat more calories. The average man needs about 1600 calories of starch a day. The average diabetic can take 600 calories and he needs that; he must have it. If he does not get it he is going to suffer premature death and xx die off sooner than he ought to die. Some cases can eat as much as 800 calories of starch. We find patients coming here suffering from diabetes not able to eat any carbohydrates at all and when they have no carbohydrates they will still be discharging sugar from their bodies because the sugar is actually made out of their own muscles, out of their own bodies.

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The body must have some sugar you see, so it manufactures sugar out of the body in order to supply the body needs, but before that sugar can be utilized, before it can be made use of, it slips away; it has to be poured into the blood and it slips away and gets away ~~out~~ before it can be used because the body has no power to store it. Now in such cases we must give sugar just the same and the carbohydrate. We even sometimes actually feed patients sugar in order to get the carbohydrates in quickly because they need it so much. It is this that leads patients into diabetic coma. A person takes no starch and pretty soon the acids that are formed in his body become present in such large amount that the brain becomes poisoned and a stupid feeling comes over the patient and he begans to feel drawsy, then sleepy and goes to sleep and can be arroused but after a day or two he goes into a deep slumber so deep, so sound he cannot be aroused and in a day or two more he passes off. So this is not a desirable situation at all to have. We can fight that condition by feeding starch better than in any other way, so the great thing to be done for a patient suffering from diabetes is to get him to eat just as much starch as you possibly can and by studying his case carefully, first trying one kind of starch, then another, then another kind of starch, we find out after awhile the particular kind of starch they can eat the best and utilize in the largest quantity. It is found that certain kinds of starch are best adapted to certain persons and certains kinds to other persons. In general it is found the body will utilize one kind of starch better than it will several different kinds of starch. That is we may feed the patient one day potato starch and he will do well on it; he will do well on it for a number of days if we continue, but after awhile a time comes when he does not do well on potato starch then we will put him on oatmeal starch and for some days he will get along on oatmeal starch so beautifully and get a wonderful lift, then comes a time when he is no longer doing well on oatmeal starch and we must make a change and then we put him on banana starch for there is very little starch in bananas and

and we must make a change and then we put him on banana starch for there is very little starch in bananas and the patient thrives on a banana diet for a day or two.) Now you see if the patient did not have anybody to tell him about that and was simply blundering along blindly he would leave so much ground that he could not make it up but by this means we are able to help the patient from one step to another step and another and another until by and by we can get him on pretty safe ground and can teach him in such a way that he can tolerate his disease and get along with his crippled liver and perhaps live many,many years. We have a patient with us at the present who has had this trouble for more than 20 years and he has held it in control by accurate and careful studies of his own case making constant analyses. He is a man of unusual intelligence and has been able to hold his disease right in <u>stetu tuo</u>. There has been no advancement in the last 10 years since he begun to come to the Sanitarium. He is just as well today as he was then so far as this particular trouble is concerned and that is what the diabetic can do. A person with diabetes is like a person who has lost their leg, who is crippled, who has got to limp. He cannot engage in all the activities like a perfectly soundman. but nevertheless, he can live and enjoy life and have a good time in life and live a useful life so the man who has diabetes simply has a crippled liver or maybe some other organ is crippled. There are of course, some cases of diabetes in which there is chronic inflammation perhaps or malignant disease of the pancreas in which the disease progresses rapidly and such a case can not be cured but these are exceptional cases and the great majority of cases of diabetes can be wonderfully helped by this course of study. We start with every patient who comes here a metabolism chart and this metabolism chart

tells us within a few days just what is the best food for that patient to eat and just how much he can eat of it.

Q/ Is hypohydrochloria curable?

A. Now that depends upon how Hypo it is. A person who has hypohydrochloria is simply a person whose stomach does not make enough acid. Now, if a patient's stomach does not make any acid at all the probability is his stomach has retired from the acid-making business. It has gone out of business entirely. It has closed its laboratories and it will never make any acid any more. The glandshave degenerated and have disappeared. I have operated upon such stomachs when the mucous membrane of the stomach was just as smooth as a glass surface or as a smooth silk. There was not a gland that showed any evidence of any secretory power at all. That was a stomach that made no hydrochloric acid whatever. Now, of course, such a conditions of things never cannot be restored. Such a person cannot be made sound and well again but a patient whose stomach does not make enough hydrochloric acid is fortunately in a very different state. A person whose stomach makes half as much as it ought to can be so improved that the stomach will perhaps make allthat is necessary unless the amount is very small indeed. The amount may be so small that it will undergo degeneracy after while and nearly all the glands will become degenerate and there is very little acid-making power left. Very little can be done for such cases in a curative way but it is of very great importance for these patients to be examined and to be treated as regards their care because it is possible for such a person to live notwithstanding the fact that the stomach does not make any acid while gastric juice is very necessary it is not absolutely necessary to human life. The weight work of the stomach is a rather preliminary work and an absolutely essential work. (Cases are on record in which the stomach has been entirely removed. In fact, I have in one or two cases removed almost every bit of the stomach myself. I have two

cases in mind now in which the stomach was practically eliminated from the patient's anatomy. There was a cancer growing in one case that had extended on both sides so that I was obliged to cut the stomach right off and bring the intestine up and attach it on the little fragment of stomach that remained. The rest of the stomach was entirely gone. He had just that little part attached to the intestine at its lower corner and that patient lived seven years and enjoyed excellent health. He became very fleshy and plump and food passed down into the stomach and right on down, did not stop half a minute in the stomach so we can get along without the stomach. There is a lady upon whom I operated some five or six years ago who did not have cancer of the stomach and I did not have to remove quite so much of the stomach and I attached the intestine at a point lower down but in this case the same condition exists. The food passes into the intestine and sails down the intestine in a minute and a half and it can be seen by the X-ray going down into the intestine and she was in splendid health, quite relieved from a lot of trouble that she used to have when the food had to worry itself out of the stomach so it is important for this patient who has no stomach capacity, that is whose stomach cannot make any acid, it is important for that patient to take food that doesn't require acid. It is important for that person to eat food in such a way that there is no work for the stomach to do. Now, the stomach has to do three things that are very important. One thing is to digest certain food elements and to help break up the food. Another is to grind the food. Another is to dissolve the food, another is to grind the food and the third thing is to disinfect the food. Now then we see when a person has no hydrochloric acid in the stomach it is important for him to know three things. First he must take care to eat food that does not require stomach digestion. Now of all foods that require stomach

digestion there are two that could be especially mentioned, the white of egg and beefsteak, meats of all kinds. They must be digested in the stomach or they cannot be digested at all. Why. Because the gastric juice is the only fluid in the body that is capable of dissolving connective tissue and the lean flesh the food of meat is held together by connective tissue and this connective tissue can not be dissolved by any digestive fluid in the body except by the gastric juice so it is very important that this patient cut out meats of all kinds. He must do it. If he eats meat is may worryitself out of the stomach after while but it will simply lie around in the small intestine and rot. It cannotbe digested below the stomach. Then it is very important that this patient should chew his food so very thoroughly that there will be no grinding for the stomach to do and the third thing the patient must be careful not to eat food that has to be disinfected. You take a buzzard can eat anything. You take a buzzard can eat -------- or the worst kind of putrescent fish or a piece of canned beef or a piece of patedefoiegras or finnan haddie. You take a buzzard and he can eat those things and digest them because it has gastric juice that has powerful digestive properties and disinfecting properties. The gastric juice is a powerful disinfectant. It contains hydrochloric acid. It contains three parts of hydrochloric acid in a thousand parts. Three parts of hydrochloric acid may be present in the gastric juice in a thousand parts. That would be equivalent to a 1% solution of a chemically pure hydrochloric acid that you get at the drug store, a 1% solution. Now if you put a 1% solution of hydrochloric acid or muriatic acid into your mouth it will burn your tongue up quick. but your the stomach will tolerate it and it is that powerful gastric juice or that powerful acid that is necessary to disinfect the food to destroy the germs in it. Now if you haven't any gastric juice and can't make any don't you see you must not require of your stomach any disinfecting business. Your stomach had gone out of the disinfecting business you see. When it goes out

of the acid-making business it also retires from the disinfecting business and you must not force anything on it that requires disinfection. I said canned beef because canned beef is simply rotten beef and the game is some an animal that has been killed away off somewhere and has got well advanced in decay and ready formarket. You see the game when hanging up in the market and you see it is blue, green, yellow , purple and all kinds of colors. What is the matter? Those are colors that are produced by germs that are producing decay or process of putrefaction and there are all kinds of smells there too and all kinds of germs. Well, you don't want to put that sort of material into your stomach. Limburger cheese is another insulting thing of that sort that should never be put into the stomach. You know you should not put in any live things either because live things can live down in the small intestine but cannot live in the stomach. Nobody ever had a tape worm in his stomach in the world. If one ever got in there it did not stay here long. We don't have such things as stomach worms. We hear mothers sometimes talking about the baby having stomach worms but no worm can live in the stomach. The stomach will digest anything that is put into it. People sometimes imagine they have lizards and such things in their stomachs. Such a thing is absolutely impossible because the stomach will digest everything put into it that is capable of being digested or utilized. Sometimes it even attacks itself. Then you have got a gastric ulcer. Then it is quite important you see to take nothing that contains living things. A man that eats a piece of pork that contains trichinae if he has a good strong gastric juice the gastric juice will eat up the trichnia so that it won't do him any harm. A man that eats beef that has got tape worms in it, the gastric juice will digest those tape worms so they will not do any particular harm.

Such a man can swallow live oysters on the half shell alive and kicking and won't suffer any particular injury because his gastric juice will kill those oysters don't you see. They cannot go on living there in the stomach swimming about. They die. The gastric juice kills them and it kills the germs that are coming along with them. There are some other things that have live things in. I remember sometime ago I was looking for some cheese that had skippers in it and maggots ~~and ---- and~~ I wanted to examine it to exhibit it so I got some cheese at the market that the cheese monger guaranteed not to have skippers in it. I asked him for some very old cheese. I didn't like to ask of it had skippers in it for I thought he would tell me, "of course not." Now this cheese had skippers in it. After I bought it I ventured to ask him if he thought I would find skippers in it and he said, "I am sure you will." You are very fond of skippers are you? My father is. He likes to have cheese with skippers in it, eats the cheese just before he goes to bed at night. I took that cheese home and examined it very carefully with the microscope and there was not a skipper in it. The cheese was so bad they had all skipped. (Some of you perhaps have heard the story of Charles Lamb. His sister you know was very fond of toasted cheese and one stormy night when he got home from the government office where he worked his sister said, "Oh, Charles, I am so sorry I haven't any cheese for supper." An Englishman thinks it is a very serious thing to go to bed without eating some toasted cheese before he retires, so Charles had to hobble off for he was lame you know, a mile and a half down to the cheese monger to get some cheese for his good sister. The cheese monger cut off the cheese and as he was wrapping it up Charles Lamb noticed that it seemed to be rather lively. The cheese monger said, "Mr. Lamb, shall I send it home?" He said, "Oh, no, lend me a string and I will lead it home."/ Now that sort of thing cannot be allowed to the kind of man we are talking about. You don't want to put such things into your stomach

ifyou haven't got any gastric juice and if you have a good supply of hydrochloric acid I might suggest that it is better to use it for other purposes than for ~~K~~filling ~~all the~~ wild beasts --------. Well, there are a lot of things to be done for these persons who have no hydrochloric acid in their stomachs. One thing is to supply hydrochloric acid. You can't take it out of a bottle and the only way I know of in which you can take hydrochloric acid to any advantage is in combination with proteins. By combining hydrochloric acid with gluten it is possible to get it into the stomach in such form that it can be utilized. Hydrochloric acid in combination with gluten forms a chemical compound which when it is followed into the stomach is broken up and the hydrochloric acid becomes free and to exercise its function in helping the stomach or the ----------pancreas to do their work.

Question Box Lecture cont'd from note book page 5244.

Q--If a young person's stomach contains no hydrochloric acid nor pepsin, is there a chance of ever getting any by correct diet? If so, what should one eat?

A--Now if it is a young person, there are very good chances because there are certain conditions of the body in which the hydrochloric acid disappears temporarily. The stomach temporarily ceases to make hydrochloric acid and pepsin. For instance, when a person has an attack of fever, if he has typhoid fever, he is not making any acid. The stomach is making no hydrochloric acid and in other fevers there is a similar effect. Babies have hyperhydrochloria, all of them. All babies have ~~a~~ hypohydrochloria and their stomachs make very little acid and it is very fortunate for babies because the large amount of acid in the stomach is not good for milk digestion. Milk digests with difficulty when there is a large amount of acid because the acid poisons the milk to form hard and tough curds and this lack of acid in the stomach makes the baby so very susceptible to disease from bad milk. An adult may eat milk and not suffer at all, but the baby takes some of that same milk and is terribly sick because there is not enough hydrochloric acid in the baby's stomach to kill the germs in the milk so these germs pass on into the small intestine and they may grow and flourish there along with the trichinae, tape worm and other bugs of various sorts that are liable to get in if we eat a wrong diet.

Q--At Mr. Horace Fletcher's book has been so indorsed by so many worthy ~~institutions~~ institutions, I would like to know how often does he claim the liver should act to keep the system in ~~in~~ a healthy condition?

A--I suppose this means bowel action because the liver is acting all the time. Mr. Fletcher does not pretend to be an authority on physiology except one part of it. Mr. Fletcher is an authority on chewing. He has made a more systematic study of chewing than anybody else that has lived. He has discovered many interesting things in relation to the mastication of food. Pawlow of St. ~~Petersburg~~

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Petersburg discovered some of these things before Mr. Fletcher did but Mr. Fletcher did not know it. Brillat Savarin, many years ago, more than one hundred years ago discovered also the same things about chewing that Mr. Fletcher has or at least some of them, but Mr. Fletcher does not pretend to know anything at all about the liver so he is not any authority at all upon that subject. In fact, when I talked to Mr. Fletcher about the subject he did not even know how much bile the liver made a day. He was very much surprised when I told him the liver made a pint and a half of bile in a day and he was very much surprised that the liver did anything of that sort, so that when I informed him of the fact that the bile is six times as poisonous as the urine, he was also very much astonished. Now I am not mentioning this in order to show off my knowledge as compared to Mr. Fletcher's but only to bring before you, the fact that the bile making function of the liver is an exceedingly important work. The bile that is formed is an excretion and six times as poisonous as the urine and it needs to be discharged from the body just as promptly as the urinary secretion is discharged. Now everybody knows if the urinary secretion is retained within the body it is a very serious matter. The body is rapidly poisoned and here is an organ throwing out the most deadly poison the body produces, the alkaline poisons. The kidneys eliminate the acid poisons of the body and the liver the alkaline poisons which are the most deadly of all and in such quantity are these poisons poured out by the liver and in such concentrated form, the bile is six times as poisonous as the urine so this pint and a half of bile that is poured out has as much poison, contains as much poison perhaps, as nine pints or more than a gallon or urine would have and this is produced every twenty-four hours. It is just as important to get rid of that quantity as that the secretion of the kidneys should be gotten rid of promptly. Mr. Fletcher fell into a very grevious error when he first begun his experiments. I am one of Mr. Fletcher's great admirers and we are very good friends, still we disagree entirely adequately upon this one point, and have discussed the thing openly in public as well as in private. I am sure he was very much in error. When Mr. Fletcher

began to chew his food thoroughly he found it reduced very greatly the quantity of food he ate, that he ate only about half as much as he had before and he also fell into another error in connection with chewing and that was that one should never swallow anything that could not be made liquid in the mouth, that one should chew the food as long as it had any flavor in it and what was left when it did not have any more taste in it should be rejected from the mouth and returned to the plate so that Mr. Fletcher, in the first place, swallowed, took into his stomach or into his body only half as much food as he had been taking and possibly only one-third as much food for he is quite a big eater, but in addition to that, he rejected all undigestible residue so that there was nothing at all left after the process of digestion and absorption had taken place and there was nothing left at all for the bowels act upon and very naturally he discovered right away that his bowels became very inactive and he published in his book that his bowels moved once or twice a week and gave the impression to the public that that was quite sufficient and all that was necessary. He thought that this was the best possible demonstration of the correctness of his theory, that by chewing the food became so thoroughly purified that it was rendered so aseptic by the process of thorough mastication it was so thoroughly digested there was no putrefaction, no decay and there was nothing for the body to discharge. This led to the use of the word "fletcherize" He said "pasturize"means to purify and"fletcherize"purifies in very much the same way so we had to discuss the thing in that way and the word "fletcherize" got into the public. In fact, I guess I was responsible for its becoming public myself and I thought it was a word that would popular so I locked it in a little article on the subject and it was at once picked up and the word "fletcherizing"and "Fletcherize"became pretty soon quite popular. This, however, was a very great mistake because Mr. Fletcher had come to this conclusion quite too hastily. I will tell you a ridiculous circumstance that happened one day. Mr. Fletcher came into my office and he pulled out of his pocket a couple round objects about like marbles and he said, "Doctor, those are too stools and you see they have no bad odor at all. I have been carrying those for pocket pieces

in my pocket for six months"and it was certainly very amusing. They were free from odor and he says, "That shows how perfectly fletcherizing, chewing the food, how completely that sterilizes the food and removes all the ehements of putresence. Well now it took me some time to convince Mr. Fletcher that he was wrong about that, but I finally convinced him. He came to see us here and I made an experiment upon him. I gave him some charcoal and I said, "We will watch for that charcoal and see how long it takes for it to travel through the alimentary canal." Well the next morning he sent for me post haste. He said,"What was that medicine you gave me. It was something awful." I said, "What makes you think so." He said, "Why, I had to get up about three o'clock in the morning and my bowels moved and it was something awful". We sent a specimen to the laboratory and we found ten billions germs in a teaspoonful. That was the proportion of germs, one of the worst specimens we ever saw, ten billions germs. "Now how did that happen"he said. "Why my bowels move and there is almost no odor at all. "Well", I said, "you have soaked it all up, just absorbed it, that is what has happened. It has all been absorbed into your body, every bit of it and that is the reason why it lies about so long in the body. It is all absorbed and the bad odors are absorbed out of it and it becomes dryed and hard dry masses and that is why you think it is sterile as you see here". "But now what is that medicine you gave me." I said, "It is nothing in the world but charcoal." "But charcoal couldn't make anything putrefy, it is a purifying substance", so he could not lay it to charcoal. Well I think Mr. Fletcher was rather convinced. The last letter I received from him he said, "My bowels are moving regularly every day." And the last time he was here after he had been here a week or two hesaid to me, "My bowels are moving twice a day and they always do when I am here on your diet, so Mr. Fletcher has changed and I regret very much that the statement he has made in this books has gotten broadcast because I have received letters from many people who have tried fletcherizing plus constipation and they have certainly had a very unhappy time of it. They found themselves getting worse instead of better. There was Mr. William James, the great psycologist of Harvard. He was a very argent

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

March 31, 1913

at 8:00 P. M.

By

J. H. Kellogg, M. D.

Q. What is the recipe for Dr. Bulkley's skin cream?

A. Dr. Bulkley calls this preparation a skin food but I don't like the name "skin food" so we call it skin cream instead. This skin cream is simply ordinary cold cream made without lard with white vaseline instead of lard and containing a very small amount of bologylcoride and lanoline. This is the formula for it. It is very simple indeed. Lanoline 1 dram, bologylcoride 2 drams, vaseline 6 drams. This is to prevent irritation of the skin. It is for people who have trouble in cold weather with the skin getting dry and rough and irritated. Whether it is the hands that are troubled or any other part of the body it is easy to get. This irritation, smarting and tingling that so many people have especially when they bathe in water a good deal and take baths frequently fails to remove oil from the skin which is the protection of the skin particularly in cold weather. Such persons are especially people along in years some people suffering this way all their lives are entirely relieved by the application of this simple emollient because that the suffering is this that the cold air which is always dry air, it may seem to be damp but it really is dry because cold air is notcapable of holding very much moisture. In winter time when we are living in an atmosphere that has had the water frozen out of it, when the air goes into the house and warmed it becomes thirsty for water so it takes up water from the skin. A cubic foot of air at zero saturated with water contains only one drop. There is only one drop of water in a cubic foot of air at zero when it is saturated and contains all the water it can contain. Now with the rise of the temperature of that

air to 25 degrees it will hold three drops and if you raise the temperature to the rate of 50 degrees it will hold four drops and at 75 degrees it will hold eight drops and at 100 degrees it will hold 16 drops. In other words, air at 100 drops is capable of holding 16 times as much water as air at zero and the consequence is, when you raise the temperature of cold air in winter time it becomes capable of taking such a large amount of water that it dries the skin very rapidly and then the superficial layers of the skin crack and that exposes the delicate nerves of the skin to contact with the air and these nerves become dried also and when a nerve get dry it always suffers pain. When a nerve is soaked full of water it is free from pain. Its irritability is lessened but when the amount of water in a nerve is lessened that increases the irritability of the nerve. That is why the neutral bath is so beneficial because the nerves are kept thoroughly soaked up full of water and are less sensitive on that account. This emollient is a very excellent thing because it contains a small amount of glyerine. The lanoline is the oil from the sheep's wool and it is a natural oil so it is well adapted to the skin. It is simply oil that is produced by the skin itself. Cold cream contains vaseline which is a protection to the skin to prevent its rapid drying. The glycerine which is found in the bologlycoride absorbs the moisture from the air and holds it and it takes moisture from the skin also and holds it so as to keep theskin a little moist and prevent it drying out so this makes a very ~~a~~ ------- combination. Sometimes when there is tingling and burning of the skin, a little irritation or ------- acne appears. That is due to the fact that the skin is infected. When the little fissures that are produced, the little cracks are produced by chapping the skin through the drying of it, it opens up the delicate tissues down beneath the horny layer of the skin which is broken so the sensitive ~~features~~ tissues down beneath are infected by the germs which are always on the skin and that creates a little ------ irritation very easily so this is an excellent protection from that.

When there is a great amount of irritation it is well to add something to relieve the irritation especially menthol. Ten grains of menthol may be added to this preparation which makes about an ounce. It is also proper to add give grains of carbolic acid. That is a very good remedy for obstinate cases used altogether. That is an excellent thing for cracked lips and chapped hands. If you employ it in cold weather it prevents this chapping and irritation of the skin. Sometimes patients coming here and taking baths every day, having salt glows and all sorts of suctions upon the skin, the skin gets very irritated. Ask the treatment girl or treatment man to use Dr. Bulkeley's cream, to apply a little of Dr. Bulkeley's cream for you after the bath and you will find it will give absolute and complete relief. A little while ago a gentleman came here who had suffered for many years with this sort of irritation. He said he was suffering the torments of the dammed, he was so perfectly tormented day and night and sometimes did not sleep and he had suffered for years with this trouble always in cold weather. I gave him a little of this cold cream and he came to me a day or two afterwards to tell me that he had been translated to heaven and he was wonderfully relieved and came to thank me for this suggestion. It is really the best preparation ever discovered for this purpose.

matting

Q. What is the best relief for tired eyes caused by inability to sleep?

A. Sleep is the remedy but you say, I can't sleep. Then simply pretend to sleep; shut your eyes because it is not for lack of sleep that makesthe eyes -smart-- but youkeeping your eyes open. A lady said to me sometime ago,"Doctor I never closed my eyes all last night; I never slept a wink. I did not close my eyes the whole night long." I said, "You didn't close your eyes?" She said, "No, I never closed my eyes once." Then I said, "You did not deserve to sleep." Now when you go to bed and close your eyese and don't lie there looking at things and trying to sleep

but shut your eyes up and try to sleep and the probability is, you will go to sleep before you know it. It wasn't so very long ago that we had a man who fell asleep at the dinner table but the worst case of this sort we ever had was a man who came inside the door and experienced such a somniferous influence the moment he got inside the door that he fell down on his knees sound asleep before he could get ----------. This man weighed about 285 pounds and came here to have his weight reduced and that was one of the consequences of his overweight. He called at the desk to get his key. The clerk took the key out of the box and turned around to hand it to him and he had fallen over on to the counter fast asleep waiting for his key. In six weeks he was a different man. His body was simply saturated with poisons because of his obesity. Now if a person who has had this terrible smarting of the eyes, that canbe relieved by bathing with hot water. That ~~[illegible]~~ of the eyes by too long exposure to the light is relieved almost immediately by bathing with very hot water. Just bathe the eyes in hot water as hot as you can bear bathing every few minutes in this way will give great relief. A little boracic acid dropped into the eyes will do a great deal of good. If your doctor will give you a preparation of 5 or 10% of colloidol solution that is an excellent relief for this condition too.

Q. What causes salt in the blood?

A. Eating so. That is the only way you can get salt into the body is by eating or drinking it.

Q. Should one eat between meals?

A. That just depends. If one eats enough at his ~~other~~ main ordinary meals he should not eat between meals. The better way is to take the proper amount at the regular meal but if you do not get enough to eat at two meals eat three or four. We have a patient up in the ward now that we are feeding every three hours and you might say that is eating between meals but rather, it is frequent meals instead. The number of mealsa person eats depends upon

the amount taken at a meal and the kind of food taken. Food that digests in an hour may be taken every two hours without difficulty you see.

Q. What causes ones pulse to be below normal also above normal?

A. There are too many causes of this various ----- pulse to undertake to discuss it in a single question. The pulse rises in fever. Exercise will raise the pulse. Excitement will raise the pulse. The pulse is lowered by lying down, by keeping quiet, keeping still, by a horizontal position by anything that causes very great depression. High blood pressure is below the pulse also.

Q. How may flesh brushes be used in such a way as to get the most benefit?

A. I don't know of but just one way to use the flesh brush. This- If there is more than one way I would be glad to expatiate upon it but I really don't know of but just one way. In general the flesh brush is not to be recommended. An ordinary coarse towel is better especially if it is moistened a little with cold water. The flesh brush tears the skin too much unless the patient has a very tough skin. The flesh brush is too rough. Personally I should consider it exquisite torture to be treated with a flesh brush. Perhaps I am some skin -------- but when the treatment of the skin is so rude that abrasions are made harm is done because the integrity of the skin is necessary to the protection of the body against microbes.

Q. Is soap needed to cleanse the skin when a daily sponge bath is taken?

A. Ordinary water will not completely cleanse the skin for the reason that there is a secretion of fat upon the skin or oil and the excretions are retained with this soap so it requires soap or a little alcohol of some kind or a very thorough sweating following by glooming. This is very necessary for complete changing of the skin, the skin exfoliates. If it were not for the

fact that we wear clothes we would not have to take baths at all. The wearing of clothing is one of the dirtiest practices of our civilized life. Ofcourse, we must wear clothes but it is a very filthy practice, wearing clothes. In the wearing of clothes the body is exposed to constant contaat with excretory matter. Now we think we must have a room well ventilated to keep the air clean. That is true. We are very careful that the water we drink is absolutely pure. We don't want any of our excretions to be mixed with the drinking water. We have taken the very greatest pains to keep the sewer away from our sources of water supply and that is very proper but we must remember that we breathe through the skin as well as through the lungs. (One fiftieth of all the breathing we do is done through the skin for the skin is similar to the lungs only it is lungs on a small scale.) We have 20 square feet of skin surface and we have 2000 square feet of lung surface and the skin breathes. We have 100 times as much lung surface as of skin surface and that we breathe one fiftieth of all we do breathe through the skin so it seems that the skin is a better breathing surface foot for foot comparing equal surfaces the skin is a better breathing surface than the lungs themselves but we must give the skin a good chance. (If we breathe out and in breathing the same air over and over we very soon suffer from the pollution of our bodies with our own excretion so when the skin is breathing if the skin is covered over with clothing especially if it is impervious clothing the skin is breathing the same air over and over.) The excretory matter thrown off from the skin is breathed in again and not only that but the clothing retains a liquid, impurities and the ------ impurities that are thrown off from the skin. (I remember sometime ago to have met a man who consulted me about his health. He wanted to know what he should do. He had a cough. I suggested that he should take a bath. I did't have to examined him very minutely to find out he needed a bath. In fact, I knew that when he was still several feet away. I didn't have to use a thermometer

or feel his pulse or examine him with a microscope. My nose told me that he needed a bath. but when I suggested a bath he threw up his hands in horror. "Why" Doctor he said, "A drop of water has not touched my back in forty years." This was some years ago, I think a man from northern Michigan and I happened to meet this man when I was up here. He had somehow gotten prejudiced against baths and I doubt if he had changed his clothes for several years for there was certainly a very ancient odor about him and that odor was due to the accumulated excretions of his body. Now, if it were not for wearing clothing you see, such a thing as that would be impossible. That is a very extreme case in which there were months and years of accumulation which this man was carrying around in his clothing so he had a strong personal ordor that was due to the excretory products that were thrown out upon the skin and retained in his clothing. Now if we did not wear clothes we can readily see that all these impurities would escape from us. If we wore as little clothing as the native of Congo does, simply the loin cloth or as Yuma indians did when I first saw them some 20 years ago down in old Fort Yuma, simply a little black apron or loin cloth. In this condition the skin is kept clean all the time. The gaseous impurities that find their way out through the skin are carried off by the air. The solid impurities and moisture that comes out upon the skin is rubbed off the skin so the skin is kept polished by contact with bushes, leaves, twigs, and running about in the thicketsand the grass so the skin is kept continusally kept polished. I was very much interested in noticing these indians out there when I first visited them something over 20 years ago and what fine skins they had. I didn't see any pimples on that skin or any skin eruption. Their skins were perfectly smooth, clean, silken. These people were wonderfully vigorous and healthy. Wearing clothes retains these impurities and we must do something to counteract this bad affect of this habit of wearing clothes. The skin does not have a fair chance. It becomes

relaxed and degenerated and poisoned by the retention of its own excretion so it is very necessary that something should be done every day as a work of supererogation if you please as a special duty to the skin in order to atone for the abuse to which we subjected in satisfying the demands of modesity in civilized life. That is what the morning bath is for. It is not for cleanliness. It is for skin gymnastics. It is not to keep the skin clean but for skin gymnastics. A sponge bath does not cleanse the skin. To cleanse the skin we must have soap and water or oil and oil bath will cleanse the skin. There is a doctor in Chicago who told me he had not had any water on his skin for twenty years but he takes an oil bath. He polishes himself off with olive oil three or four times a week so he keeps himself sweet by means of an oil bath which is just as good a cleanser as a water bath because the impurities upon the skin aremixed with oil and the clean oil will carry off these impurities so one may take a bath either in oil or in water with soap but water alone will not cleanse the skin. Wherever oneuses soap upon the skin he should apply a little oil afterwards. This is where this Dr. Bulkeley's skin cream comes in very advantageously but any good emollient is good for this purpose. A little white vaseline or albolene is good for the purpose or paralax would answer perfectly well if you did not have anything else at hand.

Q. Why did God approve of Abel's sacrifice of meat and did not approve of --------- of fruits and vegetables.

A. You will have to ask some theologian about that. I don't know. That is one of the problems that I cannot solve for myself. There are lots of things hard to understand and that certainly is one of them. I believe we have one or two bishops in the house and I think also have an archbishop in the house and I suggest that you present these questions

for answer for I do not pretend to be a theologian. The Bible is not a text book of hygiene but it is a text book of morals and I am sure we can find plenty of good instruction in ethics in the Bible but when it comes to dietetics we could not expect to find everything necessary to know about the hygiene of our homes, the hygiene of our clothing and the hygiene of our food. We could not expect to find that all in the Bible because that is not the purpose of writing the Bible. There was another purpose apparently besides it was written years and years and years ago before many of our modern conditions of life had arisen.

Q. Is reading at meals harmful?

A. It depends upon what you are reading. If you are a merchant, a speculator we would say, it would be a very bad thing for you to be reading the market reports and ---------- while eating your dinner. You might find your stock had gone down. If you did it would be very likely to spoil your dinner. The stomach would be likely to stop on the spot but if you are reading something pleasant and entertaining that diverts the mind from cares and worries perhaps that have been pressing in upon you, then reading is a good thing. Diversion of the mind is a thing of great importance.

Q. Are macaroons not favorably considered by the Sanitarium as an article of diet?

A. They are not served in the dining room.

A. Well, macaroons, mushrooms and things of that sort, I confess I don't know very much about. The suspicion I have about macaroons is that they are not really the most digestaible things ~~besides~~ besides of the temperature of which they are exposed and the ~~temperature~~ admixture of fat at high temperature which burns the fat and renders it very indigestible.

Q. What is angina pectoris?

A. It is a diseased condition of the heart accompanied by severe pain

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following through the chest running down the arm and usually causing a very great distress and anguish. It is due to a diseased condition of the blood vessels of the heart, a spasm of the blood vessels of the heart. Sometimes there is also a hardening of the arteries of the heart. It is very likely to be connected with arteriosclerosis and high blood pressure.

Q. Explain the rest cure of Dr. Mitchell.

A. Have the patient go to bed and eat very heartily of beefsteak and drink large quantities of milk. It was sort of a ---------- progess by which the patient was fatted up and a good many patients got well under this regimen. People had been taking a promiscuous diet and had been and have been working about day and night and had no regular habits were put to bed and relieved of care and anxiety and adopted a monotonous life instead of the exciting life they had been living and were made to gain in flesh and improve in health but this system of treatment has some dangers in it. If any of you have ever read Dr. Mitchell's little book "Spot and Blood" you will remember that in is an account of a young lady who was wonderfully cured by this vast cure, wonderfully helped, went away having gained twenty-five or thirty pounds or forty pounds but after six weeks in bed but three or four weeks later was taken sick with acute Bright's disease and died. There was good reason to attribute that acute Bright's disease to the enormous over feeding. It is at the present time regarded as an unscientific method. It is not necessary, and is very seldom to be recommended. In fact, by Dr. Mitchell I think very few people would undertake to practise it at the present time. A patient would often be ------ 30 or 40 pounds in bed but when he got up on his feet he could hardly stand around. He must be made stronger and vigorous by properly graduated exercises so the rest cure alone is not to be relied upon as a means of cure. There is a more happy kind of work than rest for the average chronic invalid but he needs however, a change of work. Sometimes a good day's rest is good to start with.

Q. How about old fasioned corn bread?

A. It is excellent. There is nothing better. It is perfectly wholesome.

Q. Why do some doctors advise the omission of the evening meal?

A. That is a very excellent recommendation, the omission of the evening meal. Almost everybody would sleep better if they did not eat supper. The taking of the last meal at four o'clock or not later than four or five o'clock is a most excellent plan especially for people who do not sleep well. If any of you are notsleeping well, I advise you to go without supper or take nothing but fruit for supper. Cut out bread and butter. That is particularly hard to deal with. If you eat anything besides fruit let it be a little rice perhaps or a Colax biscuit if you want something really dainty. Colax biscuit are not so bad after all if you know how to eat them and the proper way is to turn the biscuit into a cup and put on a little minute brew and cream and sugar. Let the biscuit soften a little bit and you will find it is not bad at all. Some people really get to like it. A lady told me she had difficulty about keeping enough biscuit on hand because her little boy was so fond of them he used to steal them out of the box and was nibbling at them all the time he could get his hands on them.

v-m

Question Box Lecture, March 31 continued from note book page 5263.

Q--Why is fresh air so constantly excluded from the public room?
A--Well we have a good supply of fresh air coming in all the time. If you will notice, this house is arranged so that it breathes scientifically. We don't have to have windows open to get fresh air into this house, but we get too much heat sometimes. However, we always have an abundance of fresh air. We have something like two hundred ~~thousand~~ square feet of ventilating surface The sectional surface of our ventilating shaft is 200 sq. ft. and there is a great amount of air coming out of this ventilating shaft all the time and an equal amount of air taken in. We have in the basement a large place where the air is warmed and a current of hot air is coming in continually. Every room in the house is arranged so that it breathes. The air in the house is always fresh and pure. If it seems a little close it is simply because it is too warm but not because it is impure.

Q--Which is claimed by ~~statistics~~ statistics to be the healthiest state in the union?

A--Statistics are not reliable. We can't tell from statistics which state in the union is the healthiest state because the statistics show that the death rate for instance in Idaho is about eight to the thousand; the death rate in Massachusetts is seventeen or eighteen to the thousand; the death rate in Michigan is about fifteen to the thousand a year. The older the state the higher the death rate, because the older people are dying off. In some of the western states they haven't many old people yet. The states are not old enough yet for the first settlers to have gotten old enough to die so the statistics are not reliable. We can't tell anything about it by that. However, if you want my opinion about it, I am perfectly frank to tell you I think Michigan is one of the healthiest states in the whole union and that is why we have the Sanitarium here. It is because this state is peculiarly healthy and there is a good reason for it. If you want to find one little spot on the earth that is healthier than any other, find an island in the sea that is small enough to be completely swept and ventilated

by the winds of the ocean surrounding it. That would be the cleanest place in the world, provided it was kept in a cleanly condition. There is no chance for the accumulation of impurities of the soil or air. The investigations of bacteriologists have shown that when air is examined which has swept over a long eatth surface, a long land surface such air is always full of germs. If you take the air of the sea it is free from germs, yet the air that is coming from the arctic regions in winter time, air that comes down from the north pole, it is absolutely free from germs. Even the animals up there haven't any germs in their interiors. It is a very happy place to live on this account. On the other hand a person coming from the South is always loaded with germs. Why? because the temperature doesn't fall low enough so that the growth of germs is prevented, you see. In Michigan we have almost an island. Michigan is surrounded by three great lakes, Lake Huron on one side, Michigan on the other side and Superior on the north and it is only at the south that the state is exposed to land breezes. Fortunately for Michigan, the prevailing wind is the southwest wind so the greater part of the state of Michigan is supplied with air which comes across the great Lakes Michigan. If it comes from the north it comes across Lake Superior; if it comes xxxxxx from the east it comes from across Lake Huron· if it comes from the west it comes across Lake Michigan; if it comes from the southwest it comes from over the greater part of the state across Lake Michigan; if it comes from the southeast it comes across Lake Erie so it is only when the wind comes directly from the south that is exposed to germ laden air. That gives Michigan advantage over the most of the states. Of course, when you go to Colorado and other states at the top of the continent, they have just as pure air as it is possible to find anywhere. All the Rockey Mountain region is a great Sanitarium. The air is remarkably pure, healthyand wholesome there. Michigan is coming to be recognized more and more as a health resort. The summers of Michigan are particularly good. We have the summer of the northwest and the winter of southern Ohio, because the lakes keep us warm in winter and they keep us cool in the summer so Michigan is really a very favored stated. I suppose there are very few states to which there is so great an influence in the summer time as people coming for health. We have in the state of Michigan several thousand

little lakes. The state is all dotted over with little lakes. Michigan was the starting point of the retreat of the last glacial period. The foot of the great glacier, the third great glacier period, the foot of it was just eight or ten miles north of here so the whole state is covered over with glacial gravel from ten or twelve to seventy-five or eighty feet and these hills you see about here are all formed of glaciers. The hollows where the lakes are are places where the glacial ice remained and melted later on and left a hollow place while the gravel was pilled up round about and that is why the state is furnished with such an abundance of water and with several thousand little lakes in addition to the great lakes around it and that makes the state really a great health resort. Forty years ago, Michigan was cursed with malaria We had the anopheles mosquito here, but it for some reason got tired of Michigan and moved away, went off down to Indiana and southern Ohio and further on into the southern states and seems to be going farther south all the while. So Michigan is not troubled with the anopheles mosquito any longer. I don't know when a case of malaria that originated in Michigan has been brought to us. Certainly I have not seen a case of malaria originated in Battle Creek for the last twenty years. We have now and then a case of some person who has come from abroad and brought the infection with them. That helps to make the state a salubrious state.

Q--If blood pressure falls to respond to treatment, then what should be done?

A--It always does respond. If a person suffers from high blood pressure, say a blood pressure of 200, it is because it is necessary for him to have that high blood pressure. He has to have that amount of pressure in his blood vessels in order to get the blood circulated around into all the nooks and corners of his body where it is needed. This blood pressure would not supply the different parts of the body with blood enough to keep the blood purified; it would not supply the brain with blood enough to keep the brain purified with all the blood that it needed, so we must have that blood pressure high to keep the body supplied wherever it is needed. Now in order to get that blood pressure low, we must remove the necessity for the high blood pressure, we must remove that condition as the brain, kidneys or other parts of the body which creates a need for this

high blood pressure. In other words we must remove the obstacles to the circulation and the great obstacle to the circulation is the contraction of the arteries, so we must relax these arteries. How can that be done? There is one thing most important of all and that is to remove the poisons from the blood because it is these poisons in the blood that cause spasm of the arteries, cause the arteries to contract. The poisons cause spasm of the arteries so they are contracted and too small. That is the reason why a person suffering from high blood pressure and neurasthenia which always precedes high blood pressure, suffers so much from cold hands and feet, because the arteries are contracted; that is why these persons often suffer from loss of memory, because the blood vessels of the brain are contracted so that the brain cannot act properly. Now we must overcome this condition. How can we get rid of these poisons? There are three things to be done to get rid of them. The first is to stop putting the poisons in, stop taking tea and coffee. Tea and coffee contain caffein. An ordinary cup of coffee contains a medicinal dose of caffein. If I had a patient with a low blood pressure and I wanted to raise his blood pressure I would give him three or four grains of caffein and that would raise his blood pressure if it were possible to get it up and a single cup of coffee has that much caffein in it, so if you have high blood pressure, you don't want to take tea or coffee. A cigar will raise blood pressure, so if you are accustomed to smoking, you must stop smoking. Beefsteak will raise blood pressure. Why? because every kind of beefsteak has 14 grains of uric acid in it and uric acid is practically the same as caffein. It will raise the blood pressure, has exactly the same effect upon the body as caffein. Each kind of beefsteak contains 14 grains of uric acid which is as much as three strong cups of coffee contain of caffein, and a pound of sweet bread has 70 grains of uric acid it, so sweet breads you see is the last thing anybody ought to take who is suffering from high blood pressure. It has such a large amount of uric acid in it. We ought to stop all these things and that will help to bring the blood pressure down. Now the next thing is to eliminate the poisons formed in the body as much as possible. There are

poisons that are naturally produced in the body and some produced unnaturally through decomposition in the colon, putrefactions going on there and there are two great avenues for disposing of these poisons and it is of the utmost importance to keep them wide open. First the kidneys: Now the kidneys naturally carry off the acid poisons of the body. The bowels carry off the alkaline poisons and these two classes of poisons, acid poisons and alkaline poisons are the two poisons to be disposed of by the body. The alkaline apoisons are the worst, they are the most deadly. They are largely excreted from the bowel and through the intestinal mucous membrane. The poisons found bile are six times as deadly as those found in the urine,--that is, taking equal quantities of urine and bile, the bile is six times as poisonous as the urine, so you see how important it is to keep these avenues for the disposal of poisons wide open. How are you going to keep the kidneys open which are the open door for casting poisons out of the body? How are we going to get rid of these poisons? We are going to increase the outlet through the kidneys by water. If we increase the amount of water taken into the body, that will increase the amount going out through the kidneys. When we give a patient in the sugrical ward ether, we give the patient a pint of water an hour, that is the regular dose and that is three gallons a day, that is three gallong in twenty-four hours. We pour water into the patient to wash away the ether put into the blood because ether will do damage. It may set up pneumonia or nephritis or some other trouble so just the minute that patient gets down to the surgical ward, water begins to pour through. We have an apparatus arranged so that the solution in going in steadily all the while. Sometimes we even put in under the skin in order to encourage the outlet of poisons, so you will get rid of the poisons that pass out through the kidney by increasing the amount of water and the person who has high blood pressure, unless the pressure is excessively high and has suddenly risen, this patient must increase his intake of water from one to two or three quarts of water a day and must increase the amount of water he is taking. How are we going to increase the outlet of poisons through the bowels? By simply the same practice, increasing the bulk of the food. By increasing the bulk of the food we can increase the activity of the bowels. The bowels move once every day or

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every other day. (The bowels must be made to move three or four times a day. If they move five or six times a day it won't do any harm to get the blood pressure down.) That is the only way in which we can carry off these awful poisons is by increasing the activity of the bowels, so by increasing the movement of poisons out through the kidneys and through the bowels, we can rid the body of the poisons and then the blood pressure will naturally come down, because the cause of the poisons is removed. That is the only thing that amount to anything permanently in lowering blood pressure, but we can do something in the way of treatment. For instance, the blood pressure may be too high because there is too much blood inside of the body and not enough outside so by getting the blood into the skin and the muscles we may decrease the amount of blood in the interior of the body. Ask a man who has got high blood pressure to let you see his hand. Take it up and look at the skin. You will see it is almost transparent like a little piece of colodian upon the skin or of varnish. It seems to be almost transparent so that you can almost see through it. Now we see what must be done, what must be that man's condition. The skin is capable of holding two-thirds of all the blood in the body. Now when that skin ~~is~~ has wasted away until there is nothing but a little parchment like membrane, don't you see that great mass of blood that the skin used to hold is in the interior of the body congesting the liver and the heart and the brain and all the internal organs. So we must relieve the blood pressure by getting it out into the skin, then we can decrease the blood pressure by increasing the activity of the muscles. When a muscle contracts, it has six or ten times as much blood going through it as when it is idle. When you simply think a moment. Now I think I will bend my arm but you do not bend your arm, you simply think about. That though of itself will cause the blood vessels of the arm to dilate, so if you have a nurse to take hold of your hand so and bend it up and then straighten it out again and you just doing nothing at all but thinking about it, that very thinking of it will cause the muscles of the arm to fill with blood and so will relieve the heart and the pressure within. Then warm baths have the effect to lower blood pressure. Some of you are looking skeptical, you would like to know how we know that is true. How do you know that thinking

will lower the blood pressure? I will give you the proof of it. Suppose this pencil on my hand to be a man balanced on a platform over a ~~xxxxx~~ knife edge. Suppose this was a man's head and that is his feet. When the man is balanced in that position and he thinks about his feet, down goes his feet. When a man thinks to himself,"now then I am going to raise my leg,"down go his feet because the moment he thinks about moving his feet or raising his legs, the blood vessels dilate in order to supply the blood with which to move the legs, that is the reason. When you think you are going to do a thing, nature furnishes the amunition the blood upon the spot in order to do the thing which you are going to do. So the man who has too high blood pressure may be benefited by simply by these (2) precious movements in which the limbs are moved by somebody else. Voluntary exercise, of course, increases the flow of blood through the muscles to a greater extent so the blood supply in the interior of the body is diminished, this retention of blood will be diminished and the blood pressure lowered. Now there are other things that are very beneficial, hot baths, the application of diathermy to the abdomen dilates the large vessels of the abdomen and so fills them with blood and relieves the tension else where and the application of the high frequency current, the X-ray is beneficial in some cases. Radium has been found to be very beneficial in these cases. If I had high blood pressure I should take a bottle of radium water every day of my life. I should ~~xxxxxxx~~ keep myself under the influence of radium ~~xx~~ continually as a means of helping to burn up these poisons that raise blood pressure. There is much that can be done you see. A very great deal to be done in helping the person who has high blood pressure and if the blood pressure has not come down, it may be it has not yet got ready to come down. Sometimes we find the blood pressure comes up at first, because the heart is made stronger and the blood pressure is raised so as to more perfectly supply the needs of the body, and when the bodily functions become perfected, and are carried on in a more effective way then the blood pressure will gradually be lowered. First of all, the blood supply must be equal to the needs of the body.

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Q--Does the modern method of refining sugar make it in any way injurious?

A--I don't know that it does especially. There are no poisons added to it in any way that I know of.

Q--Can anything we substituted for cane sugar in cooking?

A--Sweet fruits can be used. I don't know of anything else.

Q--Is maple sugar better than cane sugar?

A--It is just the same thing.

Q--Please explain the meaning of"nerve force".

A--I can give you a hint about that which may be useful. Suppose you have here a nerve cell in the spinal cord. The nerve cell is in a rested state and looking at it through a microscope, we will see a great number of little gray granules all through it. When the nerve cell has been at work for a while and is looked at it is found that those granules have disappeared and the cell has shrunken up. Now these little granules have been proven to be energy granules. In each one is stored up a certain amount of energy.the cell is able to use but when the cell has worked, these granules are used up and then the cell is left in a shriveled pale condition and the energy granule is gone. When a person is not able to store nerve energy, it is because he cannot store these energy granules. His nutrition is disturbed so that he cannot store energy for future use.

Q--Does the fermentation of the food in the stomach destroy its nutrient value?

A--Yes, but fermentation in the stomach is a very uncommon thing. It is a very rare condition that only occurs in cases in which the lower opening of the stomach is closed so the food cannot find a ready outlet.

Q--Does boiled meat have purin compound?

A--If you boil the meat and pour all the water off the meet there is very little uric acid left in it. I met some years ago the arch deacon of the M. E. Church who had been located as a missionary for twenty- years among the indians of northern Canada in the Hudson Bay region among the indians. I happened to meet him on shipboard and I was taking with him about the habits of the indians and he said there was one peculiar thing about them. They would not eat the government salt beef. They would take the beef and soak it in water over night, then turn

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the water off, then boil it in water and ~~thrn~~ then the water off again, then they cooked it and ate it. You see there would not be very much uric acid left in that kind of meat. In this way the uric acid can be disposed of, but they did it to get rid of the salt, but if you washed the meat thoroughly in that way you find very little flavor in it, or taste to it because the flavor of the meat is due to the uric acid and to these extracts which the meat contains which are really poisons are in no way wholesome.

Q--I eat two meals a day because I have slow digestion and only eat 1600 calories, is that enough?

A--That depends upon how tall you are. If you are five feet tall, 1600 calories is enough, but if you are five and a half tall, you ought to eat 2,000 calories. You are probably not eating enough.

Q--Can gastritis be cured?

A--Yes.

Q--Should such a person take Yogurt Tablets?

A--They would do some good but you would have to do some other things besides.

Q--What causes catarrh of the stomach?

A--It is infection of the stomach due to over working the stomach. The stomach is worn out, becomes inactive. In some cases this is due to incompetency of the ileocecal valve so that infection travels up pretty soon from the small intestine to the stomach.

Q--What makes a coated tongue?

A--Lowered vital resistance. It is not necessarily unimpure or unclean state of the stomach but it is low vital resistance. The resistance may be lowered by any cause. The tongue is usually coated in fevers. The most common cause is deficient elimination of the poisons from the bowels, an inactive state of the bowels or stasis in the bowels. This is a most common cause.

Q--What is the cause of boils?

A--Infection of the skin with germs which are always found present on the skin. There are always present on the skin certain germs which when they get beneath the skin are capable of producing --------abcesses or boils. They cannot do this

unless the resistance of the body is lowered. So boils are due to lowered vital resistance. Chronic constipation is a most common cause.

Q--What causes Bright's disease? Can it be cured?

A--The most common cause is overwork of the kidneys by requiring the kidneys to eliminate a great excess of poisons that ought to be carried off through the bowels. When a person's bowels do not move properly, the bowels are inactive, then this great mass of putrefying material that ought to be carried off in that way , excretory matter is absorbed back into the body and has to be carried off through the kidneys and the kidneys are worn out. We can't employ the kidneys to do the work in that way that the bowels ought to do without wearing them out and destroying them early.

Q--Is it possible to remove a birth mark from the septum of the nose?

A--Yes it is entirely possible. One of the best ways this can be done is by electrolysis, passing a current of electricity through it so that the tissues will be shriveled up and the absorption will remove the residue.

Q--What causes a person to snore?

A--The cause of snoring is that the person is trying to breath through both the nose and the mouth at the same time. Now if one breathes through the mouth, he does not snore and cannot snore. It is impossible to snore. If you breath through the nose only you cannot snore, but if you breathe through the nose and the mouth at the same time, you will have all kinds of snoring. You see it is simply breathing through the mouth and the nose at once . That sets the soft palate at the back of the throat vibrating back and forth between these two currents of air, one from the mouth and one from the nose. The palate is made to vibrate and that is what makes the noise of the snoring.

Q--Is it usual for gas to form in the stomach?

A--It does not form in the stomach, but is swallowed with the food that comes up from the intestine. It very seldom forms in the stomach, only in cases of fermentation which are very rare cases. Only in cases of obstruction of the pylorus from cancer or from a condition of ulcer.

Q--What moderate effect would coffee have on a person?

A--The moderate effect of coffee is simplay moderate stimulation. It makes you feel that you can do your work easier, but you are more tired afterwards then as though you had not taken it. For the time being you think you are working easire.

Q--Does a healthy growing child need meat?

A--Absolutely not. A healthy growing child does not need it and a grown-up child doesn't need it; a sick child doesn't it; nobody needs it, it is absolutely unnecessary under any circumstances except the absence of all other food. If you can get anything else to eat, you don't need to eat meat, you don't require it under any conditions.

Q--Can adhesions of the stomach and intestine be cured without operation?

A--Now it is not always necessary to cure adhesions. Adhesions do not necessarily make serious trouble unless they make obstruction. They are not seriously troublesome. Adhesions are sometimes painful, but it is not because there are adhesions but because the adhesions are inflamed, because there is inflammation connected with the adhesions. Now by curing up this inflammation, but means of fomentations, diathermy, and other means the pain disappears and the necessity for operation disappears also in many cases. We had with us last year, a young woman who had had six operations to remove adhesions. Each time she had got a little worse. She came here and we did no operation at all but simply by hot fomentations, the application of the arc light and the photophore and dry heat by the electric lamp and these simple measures with the heating compress, a complete cure was effected and in three months she went home entirely well without any operation whatever. We have this experience in a great number of cases. I an confident it is very seldom necessary to do an operation for the removal of adhesions because of pain, for the pain can be removed without operation, but if the adhesions cause a kinking in the bowel or obstruction at the outlet of the stomach for example, then operation may be the only means of relieving this mechanical difficulty.

Q--What causes a persons to be unable to keep his feet still?

A--The same thing that makes a person sometimes unable to keep his hands still

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or to keep still in any way at all. We call it "fidgets". We often see such people in church. They keep twisting their bodies around, moving their hands, simply cannot keep still. It is because of an abnormally irritable state of the nerve centers.

Q--Will orange juice, grape fruit pulp, apple, potato, etc. answer the same purpose as Colax?

A--The purpose of the use of Colax is to increase the bulk of the food and, of course, if a person can increase the bulk of the food by the use of peas, huckle berries, bran and other things of that sort, the necessity is met. It is only necessary to increase the bulk of the food and that is the only use for Colax. Colax is cellulose, it is the same thing you find in bran, beets and all kinds of vegetable foods, but it is cellulose in a pure state and you know just how much you are taking of it and it is in a form in which it cannot be digested in the body ~~xx~~ as useful for the purpose for which it is employed and we find it one of the most valuable remedies we have ever encountered. It is of very great assistance to us, but the same purpose can be met in many cases by a larger use of bran, mixing the bran with breakfast food, with oatmeal, one-third bran and two-thirds or three-fourths of the oatmeal or other breakfast food. Steel cut oats is better than ordinary oatmeal or cream of wheat or cracked wheat or any other breakfast cereals. Bran can be mixed with mashed potatoes. That is a very good way to make use of bran. The sterilized bran mixed with two to three parts of mashed potatoes goes very well indeed. It can be used with thick soups to great advantage. It can be mixed with bread, in gems or rolls or even raised bread but if you use it in making raised bread, it is necessary to cook the bran before you put it into the bread because there is diastatic ferment in the bran which acts upon the starch and converts it into dextrose which makes the bread heavy so the proper thing is to cook the bran for an hour, then in the form of a thick mush add this bran to the ~~xxxxxx~~ flour in mixing up the dough. That is the only way in which it is safe to use it. Sterilized bran may be used for this purpose because it is already cooked. I have got to the bottom of the box.

I thank you for your attention.

v-p