

DIVINE HEALING.

A lecture at the Sanitarium Parlor, Battle Creek, Michigan, Sabbath,

January 29, 1916 at 4:00 P. M.

By

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There is probably no one thing in which so much deception and chicanery are practiced as in relation to healing. The sick man is very easily duped. If he finds himself thinking he tries one thing after another without success and grasps at any straw that falls in his way. He is ready to accept anything that promises relief and, as healing is usually performed for a price, the sick one can easily find held out to him glittering promises which unfortunately are very seldom fulfilled. This view in relation to healing is doubtless in large measure the result of lack of knowledge in relation to disease. I think the average man has no clear conception of what disease is. We think of disease as something hateful, disagreeable that we must fight. It is hard to think of disease as a friend but, as a matter of fact, when we come to look at it from a scientific standpoint it is not such an unfriendly thing after all. Disease in itself is not a destructive deadly process but is a remedial process. The thing to be afraid of is not the disease but the cause of the disease. The thing for us to hate, the thing to fight and to fear is the thing that produces the disease and not the disease itself. The disease is simply an effort of the body to right itself. What we call disease is simply the body struggling against some untoward condition,

some unfavorable condition, some unnatural agent with which it has come in contact or some other cause of disturbance of bodily function. Suppose one has cut himself with a knife or by injury has broken the skin and there is a raw surface. We say that is a wound. That is one phase of disease. What we see when we look at this disease is a healing process going on. Here is a granulating surface that we call a sore. We see it is all covered over with a sort of red velvet minute dots, covered all over each of which is a granulation and we call it a granulating surface which represents a healing process going on. Nature is making new tissue to fill up the gap. The same principle applies to practically all diseases. There is a remedial process going on to restore the injured body to normal condition again so disease is a remedial process in general. Now suppose it is a bruise. Something more has to be done. The reparative process which starts up when the skin has been injured in this way is one of the most wonderful things we know biologically. Here is the skin complete, intact. Within a very short time after it is cut a new process starts up that was not going on there before. New cells are formed to fill in this gap. If, with a microscope we could look at this gap in the skin we would see that first of all, after this injury occurred blood filled the gap. This clot of blood is made up of red cells and among them there are little threads or fibers running in every direction. Then creeping along these thread are little cells, so-called white cells from the blood, so that there is a sort of temporary structure formed to fill up the gap and the builders creep out along this temporary trellis structure and network of threads and the blood cells creep out there and fill up the gap with something more substantial and this is replaced by something more substantial and by and by we have a very substantial firm structure cementing together the edges of the severed skin. When we have a bruise some of the structures of the body are damaged or

crushed and destroyed and you see a black and blue appearance because the blood vessels are burst open and the delicate fibers and structures of the body are damaged and these dead structures must be removed and this debris carried away.

and the delicate fibers and structures are damaged and these dead structures must be moved. This debris must be carried away. The wreck which has occurred here must be carried off before the remedial process can begin. So these damaged cells and fibers must be softened down, dissolved and carried off and millions of little workers swarm out of the blood into the ~~knax~~ injured parts and each one gathers up a little particle and nibbles away a little portion of the damaged sector, picks it up and carries it away to the spleen or the liver where it is disposed of. When the wreck is cleared away then ~~a~~ new structures are built in and in the course of a few weeks we can ^{not} see that there has been any injury there at all. We have another illustration of the same thing in how it happens that a nerve center is severed. The nerve trunk is made up of a bundle minute little threads. If you go out on the street you will see some single telephone wires stretched on a pole and you will see also in some place large bundles each of which is made up of perhaps forty or fifty telephone wires. That cable may represent a nerve trunk. A single nerve trunk may contain twenty thousand or one ~~thx~~ hundred thousand or even more of these nerve fibers. These are all encased in insulation material just as the telephone ~~wiar~~ wires are. If two wires should touch things might get tangled up. The other morning I heard a loud ringing of the bell and I picked up the telephone and a lady said, "Why don't you send up that beefsteak I ordered yesterday?" I said, "Because I am Dr. Kellogg and I do not deal in beefsteak". "Oh, heavens", she said, and hung up the phone. The same thing has happened so many times that I conclude that my telephone wire must at some point be in close proximity to the butcher's wire. I have been ordered to send up mutton chops, roast beef, pork chops and all sort of ~~skux~~ corpses at different times. Suppose a new fiber gets cut as

sometimes happens. It has been the greatest mystery how when a nerve was once cut in that way it was possible for it ever to be repaired. Here are these individual threads perhaps fifty thousand of them on each side. How can they ever be brought together again, thread to thread, exactly as they belong? If the fibers to the little finger and the thumb should get transposed, your little finger would move when your thumb ought to move and visa versa. How does it happen that they are joined together properly? Even if the severed ends touched you can readily see that it would be quite impossible for the wisest man on earth to match together these individual telephonewires, if you please. I found myself in such a dilemma once. I had a series of severe surgical operations one day and when I went to bed that night I could not get these operations out of mind. Some of them were very difficult operations and when I fell asleep I continued to think about operations and begin to dream about operations. By and by I woke up in perfect terror. I had cut off a man's head by mistake and I had succeeded in joining all the muscles, bones and ligaments and blood vessels together, but when it came to the nerves, to get them all matched together I found I was in despair. I could not do it and I was in such despair and such horror over the situation that I awoke. The horror of that circumstance did not leave me for weeks. The same situation would exist every single time a nerve was severed. If there were not some power wiser than you or I, wiser than the wisest surgeon could possibly be, that is able to join these individual fibers together. It has been a great mystery to the physiologists how this union of individual fibers that belong together can possibly occur until some three or four years ago a physiologist in studying cases of this sort made an interesting discovery. He found that when the nerve fibers had been cut in this way, these individual fibers which compose the nerve trunk, each individually starts out to find its mate. For instance, this fiber comes up and explores around, moves about until by and by it finds the mate to which it belongs and there it adheres fast.

And so the nerve is restored. Now the situation is just what it would be if you should look out here some day and see a ~~xx~~ trunk line of one hundred telephone wires that had been severed and you should see a telephone wire coming out of one end of these broken wires and careening about in the air, by and by coming against the end of the other telephone trunk, feeling about, and by and by attaching itself fast to its complimentary wire. That is the very thing that happens whenever a nerve is cut. What is this intelligence that guides this nerve fiber in this way. This is nothing less than creative power. The same power that made us is at work ~~thx~~ within our body. I want to make that clear to every one of you this afternoon, my friends, by giving you a few simple facts of physiology. This fact is so far beyond controversy that nobody at the present time would think of denying it. Sometime ago I was awakened at three o'clock in the morning. A Doctor in the city called me over the phone and in great distress said, "Doctor, come down at once and bring your instruments for operation. Our baby has swallowed a stick pin and you will have to open the stomach and take it out". He said, "We know the baby has swallowed the pin, a pin about two inches long. There isn't any doubt about it". I said, "I wouldn't think of operating upon a child because nature can take care of that pin a great deal better than I can". He said, "I am afraid it will kill the child. Suppose it should work out of the stomach and stick into the heart, penetrate the abdominal cavity, it would have infection and the child would die". I said, "Don't be afraid, Just trust in nature and wait". About eleven or twelve ~~xxxxxx kxx xxxt dxy~~ years ago, Professor Roger of Paris, made a very interesting experiment. He placed a stick pin in the intestine of an animal and he watched to see what would happen. The first thing that happened when the pin began to penetrate the intestine, was this. The wall of the intestine began to swell, to thicken. That was to gain time so that after the pin penetrated further and further into the wall it became thicker and thicker so that the pin should not get through.

4.7

But that was not all. The most remarkable thing was what happened very soon after. The physician noticed that in a very short time the intestine began to contract, to raise itself up and begin to push against that pin so that shortly the direction of the pin was changed so that it was soon standing erect in the intestine but the intestine kept pushing against it and continued to push until pretty soon that pin was pushed clear over, pulled out of the intestinal wall and was going head foremost down stream instead of point foremost and all was well. In the particular case I mentioned, a couple of hours afterwards the parents found the pin on the floor and the child did not swallow it so I did not have a chance to find out where Professor Reger's theory was correct or not in that case. But about three years ago a lady arrived here from the West and she said that in the morning while dressing on the train, a sudden lurch of the train caused her to swallow a stick pin. She was taken to the X-ray department and sure enough there was the stick pin in her stomach. What should be done? We said we will wait awhile and see what happens. We waited two or three days and I began to be afraid Professor Reger might be ~~at~~ mistaken but we still waited and I told the lady, "Well, I guess we will have to operate upon you to take that pin out". Finally we concluded to wait another day and the next day that pin was turned around and was going down stream, head foremost and it didn't require any surgical operation to get rid of it. Nature ~~g~~ took care of it. So we know absolutely from our own observations right here in our own X-ray department that ~~was~~ what Professor Reger observed in animals actually happens because we saw it happen right here in a human being. Now, my friends, think of the marvelous intelligence that is exhibited here.

And that is not human intelligence because Prof. Magier found that when he cut all the nerves that connected the intestine with the brain so that there was no nervous connection whatever between the intestine and the brain that the intestine did the very same thing so here is an intelligence, you see, outside of the human intelligence that is wiser than any human intelligence . Suppose you had a stick pin in your stomach and you knew the point was downward and you could feel the point of it and you should say to yourself now then I must cause my stomach to turn that stick pin around so that the head will go down instead of up so as to pull the point out. Suppose you should think that ever so hard or should get a Christian Scientist to think for you. Do you suppose you could change the position of that stick pin in the smallest degree? Of course, you could not yet here is an intelligence right there in the intestine itself that does that. Now it is this sort of intelligence of a still higher sort, manifested in a still higher way that makes possible the digestion of our food and the marvelous transformation of food into human blood and human tissue. We do not appreciate what a wonderful thing it is that the things we eat today are tomorrow walking around, talking and thinking. Our very thoughts are born of what we eat. Our brains are constructed of what we eat and it is this marvelous transfiguration I think we ought to say of the common foodstuffs we find upon the table that makes it possible for us to live, to think and move about. The transformation of bread, potatoes and apples and common foodstuffs into physical energy, into human thoughts, intelligence is one of the most marvelous things we ever encountered in our human experience. Yet it is such a common place thing we do not think anything about it. It is only through this wonderful intelligence possessed by the stomach and intestine and these internal organs that we are what we are controlled entirely without any connection whatever with our own intelligence that makes this thing

possible. Suppose one swallows some poison. The first thing that happens is vomiting. The person is sick at his stomach. In fact, the sickness often comes before it gets into his stomach. Suppose you put it into your mouth, it reaches the back part of the throat where there is located a little inspector's gate and it will be thrown forward. The process of gagging is an intelligent effort by which Nature protests against the introduction of a thing. That is why we are nauseated when certain things reach the throat, before they get into the stomach at all. When they reach the stomach there comes a vomiting which is a reversal of this process. Why is this process reversed so suddenly? Because the stomach itself recognizes there is something unwholesome about this substance in the stomach and it won't do the body any good if it is retained but, on the other hand, will do it harm so the stomach protects the rest of the body by rejecting it. Sometimes we find a sick patient vomiting without raising anything apparently and when we see that we do not say, "Oh, there is nothing here for this patient to vomit. This is purely a nervous phenomenon" as we used to think, but we pass a stomach tube into the stomach and wash it out and when that is done the vomiting ceases because the vomiting has a purpose in it which is to remove from the body poisons that are being excreted into the stomach for the stomach is an excreting organ. Poisons are taken out of the blood poured into the stomach and Nature is producing this nausea for the purpose of getting rid of the poison and there is not fluid enough there to wash it out so by making the patient drink a quantity of water or passing in a stomach tube and washing it out, complete relief is obtained. This is a very simple procedure and a very short way to get rid of the trouble because we are working in harmony with Nature. We do not consider the vomiting now as an obnoxious thing but as a friendly, remedial process, and it is very rare that it is otherwise. The same thing is true of fever, for example.

10 3

Fever is not a disease that is attacking the patient to destroy him but the fever is the remedial process by which Nature is endeavoring to save the man's life. Certain poisonous germs are gotten in and if there was not something done, the man would die so the fever is an effort of Nature to destroy these germs and get rid of the poisons. Even such an obnoxious thing as gallstones show evidence of this same remedial process. In the center of every gallstone is to be found a quantity of obnoxious germs.

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In the center of every gallstone is to be found a quantity of abnoxious germs. Some time ago we removed from a patient some gallstones and the patient had had typhoid fever some fifteen years before and in the center of these gallstones were found a quantity of typhoid fever germs. Nature had made these germs ^anucleus for the gallstones in an effort to render the typhoid fever germs harmless that had gotten into the gall-bladder during the attack of the disease. Some glass beads were put into the gall-bladder of a dog. After several months the gall-bladder was opened and there ~~was~~ were the beads just as they were put in. Some germs then were put in with the beads and in the course of a few months the gall-bladder was opened again and every bead had a gallstone formed about it. So we know gallstones are remedial and almost everything you can think of in the way of disease can easily be shown to be a remedial process. The purpose of this remedial process ^ais to save the patient's life. In this process there is always working a power that is behaving intelligently. Perhaps the simplest form of disease I could use for an illustration would be what we call Fatigue. The person is tired. Why? When one is fatigued he feels no disposition to activity. He is exhausted. Perhaps so completely exhausted that ~~the~~ he falls right down prone or lies flat upon his back and cannot move. Perhaps he is so completely exhausted that he is at the very end of his energy yet at the end of a few hours he can be feeling just as well as ever. Some of you have felt so tired you could hardly hold up your head. Fatigue is simply an advertisement that you have gone far enough. It is the sensation produced through the fatigue nerves which notified us that we have expended as much energy as it is safe for us to expend and now

we must rest awhile to allow a new fund of energy to be accumulated from food for food is the source of all our energy. The fatigue itself is due to the influence upon the nerve of certain poisons known as "fatigue poisons". However, the fatigue poisons which affect the fatigue nerves and notify us that we are ill, exhausted, that we must rest. You see sometimes on the big buildings about the town, on the billboards and in the newspapers, you see an advertisement of certain poison labeled "Coca Cola". Coca Cola promises to rest you in five minutes. What does it do? It does exactly what alcohol does. It paralyzed the fatigue nerves so that they can no longer notify you that you are weary. A woman who is tired drinks a glass of whiskey, or a man who is tired drinks a glass of whiskey and he no longer feels tired. He is just as tired as he was before but he doesn't know it. He is cold and he drinks a glass of whiskey and he is a little colder than he was before but he doesn't know it. He is poor. He drinks a glass of whiskey and he feels rich. He is a little poorer than he was before. It makes him poor and that is just exactly what Coca Colades to the man who is tired. He is more tired than he was before but he is not aware of the fact because the Coca Cola numbs and paralyzes his fatigued nerves and deceives him in reference to his real condition. A man who has pain takes chloroform. He does not suffer pain any longer but the pain is there just the same only he is not conscious of it. That is all the difference. These are false remedies, you see. A man who is weak takes a dose of strychnia and he feels strong. Strychnia has such a wonderful effect upon the nerves that it will make a frog jump about a room for days after its head has been cut off. When a medical student I saw a Professor inject a frog with strychnia, cut the head off right behind the ears so that it had no head or brain at all, then put it on a table and the moment that table was tapped that frog made a great leap right out into the air. Then we chased the frog all about the room by simply stamping upon the floor a little. The frog would jump all about the room even with its head cut off

because of the irritation of its nerve centers produced under the influence of strychnia. So strychnia is a powerful drug and it has been supposed to be a good tonic on that account because if a man is ever so tired he takes a dose of strychnia and he feels just as strong as he did before but he is just as weak as he was before. What the strychnia does is to enable him to get a little more strength out of himself. He is enabled to drain his reservoir of strength a little more nearly empty. That is why people who come here to the Sanitarium who have been taking these deceptive drugs that made them feel better when they were not better, nerve feelers have been resorting to them one after another for a long time. When they get here the reservoir has been drained almost to the last drop you see so it takes a long time for them to get filled up to the place where they feel a spontaneous desire for activity again. Now another very good illustration of healing power that is working in the body under all conditions in the process of digestion was that of Dr. Beaumont with Alexis St. Martin who had a wounded stomach so that he could look inside; and he noticed that when the stomach was empty it was pale, but when food was introduced into the stomach it at once blushed, the whole mucous membrane became suffused with blood and it was reddened. He found that the more food was taken into the stomach the more the stomach was reddened and the longer the reddening continued.

After the food was withdrawn this reddened condition would last for a while, then finally disappear so every time a person takes food his stomach becomes congested. After the food has passed Nature cures the congestion, relieves it, and makes the stomach ready for another meal. Suppose one eats all the time. I was asking a gentleman sometime ago about how many meals he took a day and his wife said, "He takes just one meal a day, Doctor, but he eats all the time." When a person eats so frequently the stomach does not have time to return to its normal state again so that Nature does not have time to cure this congestion that occurs in connection with every meal and by and by that congestion becomes permanent. Then a person has a diseased stomach. He gets chronic gastritis. His stomach becomes subject to infection. It has lost its resistance. The same thing happens to a person who is a gormandizer, eats enormously or if a person uses mustard, pepper, pepper sauce and other things it irritates the stomach. So long as the congestion is only temporary and disappears in a short time, then it is physiologic but by and by if it is repeated too often or is too intense, it becomes permanent. Then it is diseased. Just as with the heart--if one runs up and down stairs a few times his heart will be beating at a very rapid rate but suppose one continues this running until his heart has been damaged, until the valves have been injured or the heart has been overstretched, dilated, then it is continuous all the time even when he has rested and if a person ever takes exercise so intense that several hours elapse before the heart returns to its normal rate, he has done himself an injury that he may not be able to undo and may not be able to do the same thing again without even greater injury so such a thing should never be repeated.

I remember a young man who came to me several years ago that had to lie upon his back a good part of the time for three months because he had been out canoeing and a storm was threatening and to get home they found by making a short cut across country they could get home quicker. They took

152

the canoe out of the water and he and his friend ran with all their might and overtaxed themselves. He had been quite an athlete but when he came to see me his heart was running away at the rate of 140^a minute. We had to send him to bed. His muscles were strong. He was really almost a young giant but his heart had been weakened, stretched by this overtaxation so what is physiologic may easily become pathologic. That is, when it becomes permanent, we call it disease but whenever one runs so his heart is over excited, Nature has to do something for him to cure the effects of that exertion. When this exertion is carried too far so that this condition becomes permanent, Nature has to do the same thing but instead of it being simple and temporary and quickly recuperated, the process of repair becomes a longer process and takes a longer time so the cure of disease is not a single effort, different from what is happening all the time in the course of our lives. We have to be healed every day. Before we can eat our dinner we have to be healed from the breakfast. Before we can eat supper we have to be healed from the dinner, from the congestion produced by the dinner so when one's heart is made very active he must be healed of that before he can do the thing again and he may easily overdo it and do himself harm. Another simple illustration showing how intelligently the body behaves is shown in the case of poison. Suppose one should take dilute hydrochloric acid which is not burned or oxidized in the body but has to be neutralized or it might be oxalic acid or acetic acid or ordinary vinegar. The body cannot tolerate this acid. It does harm when saturated in the blood and must be disposed of in some way so the body produces ammonia to neutralize the acid. Ammonia is an alkali. If you should get some muriatic acid on your hand some ammonia would neutralize it. That is the reason it is applied to bee stings or to ant bites which have formic acid in them. Acids are highly poisonous to the tissues so when acids are

produced in the body in excessive quantity or if taken into the body in large quantity, Nature immediately makes an antidote in the form of ammonia and this ammonia tears down the muscles and tears the muscle to pieces. In order to make ammonia out of it Nature will have ammonia to neutralize this acid. This condition is largely depressing. Acidosis in persons suffering from diabetes has to be given permanent attention. Persons with diabetes are likely to die of acid poisoning, of acidosis so the body is continually make ammonia to neutralize the acid. If we find out the intensity of this process we are actually able to measure it by the amount of ammonia eliminated through the body through the kidneys. By determining the amount of ammonia present every day we can tell whether the person is in danger of the terrible diabetic coma or not or is still on safe ground. The output of ammonia tells us the state of acidosis so after a surgical operation when one takes ether, chloroform or laughing gas, this condition of acidosis is produced and we always find it. A normal person's tissues being interfered with the poisons are not burned up as they ought to be and are left in the form of acids which are the source of danger so after every operation we carefully examine the patient from day to day to see whether these acids are still present in excess and if necessary we will give him soda or something else to help him neutralize the acid. In other words, we assist Nature. The making of the ammonia which Nature does is an abnormal process itself but it is necessary antidote for the disease. I want to call your attention to another most interesting fact. Suppose this person instead of taking acid such as vinegar or something we are commonly familiar with, takes a dose of opium; a half grain to a grain would be a dose of opium or a quarter grain of morphia. Suppose instead of taking a quarter grain to relieve his pain, takes instead a grain of morphia. Dangerous symptoms would occur and if he should take two or three grains or five grains he would almost certainly die but if one takes a quarter grain today and five fifteenths tomorrow

17-4

and three-eighths of a grain the next day and so goes on gradually increasing the dose, he may after while be able to take thirty or forty grains of morphia at a single dose or at least in the course of a day. I remember very well a lady who came here some years ago who had gotten the morphia habit and her doctor came to me and said, "This lady had stated that she was in the habit of taking an ounce of morphia every day, half an ounce in the morning and half an ounce at night." I said to the Doctor, "You give her an ounce of morphia and see what she does with it." The lady divided the morphia into two portions, took one portion in the morning and the other at night. In a day or two symptoms had appeared. She had become able to do that, to take that enormous dose of morphia by gradually increasing the dose. Of course, when taken in such large quantity, the probability is it was not all absorbed. Why is it possible to do this? It is because of the remedial processes of Nature, because of the marvelous intelligence with which the body behaves under unfavorable conditions. Morphia is a poison. Morphia and quite a number of other poisons such as nicotine, arsenic and other poisons--when any of these poisons are taken into the body, the body proceeds immediately to manufacture an antidote for it so the quarter grain of morphia perhaps makes one sick and gives unpleasant symptoms. A boy smokes half a cigar and is very sick but in a week or two he can smoke a whole cigar without any unpleasant effect at all. Why? Because the body now makes antibodies the effect of which is to neutralize the poisonous effect. Now see what a wonderful thing that is. In the first place the boy is fortified when he smokes a cigar that it is poison; it is not good for him and he is made very sick and vomits but he proceeds because he thinks he must learn to smoke in order to be a man so he must smoke so he struggles on in spite of the deathly sickness that he suffers because he wants above all things to be a man, to be able to hold his head up with his fellows.

Meat Feb. 3, 1916

Brown color of beefsteak
when decayed due to
the production of bromokatechin 4

Butcher's tissues 6

~~City people eat more meat
than country~~

cities ate a large amount. 6

The worst possible subject
for a surgeon is a poor

drunkard or butcher. 6
Death from

Anesthetics, due to poisons
(of his tissues (Dr. Landersbroun)

Experiments upon monkeys 7
almost impossible to

Insatiable appetite of Eskimo -
ate a whole sheep 13

Experiments on
Removing thyroid
gland from dog 8

Exophthalmic goitre in
habitual meat eaters 9

"
Cutting out meat first of all
in case of E. G. Illus. 9-10

~~Various meats, putre~~

Putrefaction in various meats 14

" " " " " " " " " " 15

No " in intestine of child 15

Proof that a fleshless diet
promotes blood making instead
of a decay of the blood. 15-17
Is meat necessary to
make blood? 15 Shyster equinoctial
equinox
eqc

"Cutting out meat" in kidney
trouble 16

Prolonged effect of a fleshless
diet is not to deteriorate
& deplete the blood & &

2011
Food
Warm blood of 16

Can one be strong if he does
not eat meat? 17

Cannibalism 17, 18

Prof. Fisher's ^{Strength Tests} ~~Expts.~~ 18, 20

Endurance is a matter of clean
blood & tissues 19

Squirrel the most enduring
animal in the world 20

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

Thursday, February 3, 1916, at 8:00 P. M.

Everyone ought to take the morning bath. One does not require great facilities for a bath. A story is told of an Englishman in Madrid who was turned out of a hotel because of an accident in taking his bath. He called for a tub in the morning and there wasn't a tub in the house. They finally brought him a couple of butcher's trays and he established himself in these trays, one foot in each tray, like the Colàssus of Rhodes, and proceeded to take a bath. Unfortunately there were cracks in the floor and considerable water went through the cracks and deluged the man below. He complained to the office and the proprietor invited the Englishman to leave. He told a friend of his he would never again have an Englishman in his house. "Why," he said, "These Englishmen are so dirty they have to take a bath every day." In some parts of Spain travelers tell us the custom is to take a bath twice in one's lifetime, the first day of life and the last day. Germs are swarming about us, upon us, and in us. Millions of germs are to be found on every square inch of surface of the skin. The cleaner we keep our skins the less the number of these germs. If one does not take a bath often the germs accumulate because the dead cells of the skin accumulate upon the surface and the debris from the tissues that pass out in the perspiration supplies material for feeding the germs so they grow rapidly. Hence, some clean skins are likely to become diseased skins. Eczema and other skin diseases are most likely to develop on skins that are not kept clean so in the interior of the body the germs swarm everywhere. A drop of saliva planted in an ounce of beef tea will grow and develop until there are millions and millions of germs there, many of which are capable of producing death. A few drops of beef tea in which a drop of saliva has been

grown a few days will kill a guinea pig it is so deadly. This fact explains why ulceration of the teeth and gums are likely to do much harm. I have known children who were puny, feeble, weazen, had no appetite, did not grow any, were dwarfed, simply because of the continual exposure of the body to the influence of poisons generated in diseased tonsils. The influence of local infections upon the body in producing rheumatism and other disorders has been discussed a great deal recently by the medical profession. The first thing an up-to-date doctor does to a patient with rheumatism is to look into his throat to see if he has diseased tonsils. When the diseased tonsils are removed frequently all the symptoms of rheumatism disappear within a few days. Dr.

Benjamin Rush, more than 100 years ago, called attention to the same circumstance. He found a patient who suffered from rheumatism who had a diseased tooth. He had the tooth drawn and the rheumatism disappeared like magic. He refers also to some ancient writers who wrote two or three hundred years ago who had called attention to the same thing so this is not a modern discovery by any means but it is one of those important medical facts which once known had been forgotten and overlooked for a long, long time and now is coming to the surface again. We found these germs are continually working through the skin and the mucous membrane and when they get under the skin they get into the connective tissue where they find an army of sentinels which are ready to combat these invading bacteria and the same thing is true in the intestine. When the germs get through the intestine they find cells ready to fight them. Some of them get into the blood. We have fortunately friendly germs as well as unfriendly germs. Many of these germs produce poisons the absorption of which produces decay and a great variety of other disturbances, neuritis, perhaps degeneration of the liver and kidneys, hardening of the arteries and may give rise to many other troubles. The friendly germs are long, cylindrical germs which produce acids. Germs may be divided into two classes, ^{germs} which cause fermentation and germs which cause putrefaction. The germs which produce

putrefaction and suppuration and pus and inflammation are the unfriendly germs. Germs that produce fermentation are acid-forming germs and these germs are friendly. All the putrefaction germs are unfriendly. The fermentation germs produce only acids which are harmless while putrefaction germs produce deadly poisons which give rise to a great variety of degenerative processes. Some of these poisons, indeed, have the virulence of the venom of snakes and are chemically allied to the venom of snakes. The friendly germs are found in buttermilk and especially in what is known as Bulgarian buttermilk which is known to contain a strong and hardy variety of these germs. They grow within the body better than the ordinary buttermilk germs. They are able to live in the colon provided they can be supplied with sugar but they must have some sugar in the colon, otherwise they would die. These friendly germs are used by many, many primitive people and have been from the earliest times. In Central Africa each native family has a gourd in which milk is allowed to sour and they never wash the gourd but, when they take the milk out and use it, they put fresh milk in and the gourd being never washed the fermentation is communicated to the new portion of milk. In Bulgaria sour milk is used very extensively. It is known as Yogurt. Many years ago I saw carried through the streets of Constantinople by men with yokes across their shoulders, earthen pans suspended, three or four from each end of the yokes, carried from house to house peddling the Yogurt in this way. The Turkish and Armenian peasant always keeps a supply of this ferment on hand. Milk is usually eaten in that form rather than in the fresh state. At the foot of Mt. Ararat there is found a germ which is allied to the Bulgarian germ but is somewhat more hardy and produces a more agreeable flavor. In the Himalaya Mountains and in different parts of India the natives have employed a friendly germ from the prehistoric times probably. In Iceland another friendly germ is employed in making what is known as skyr. These sour milk preparations have

been found of great value in curing up intestinal troubles. We have succeeded in collecting these friendly germs from the various parts of the world, everywhere, from our contact with people who were acquainted with these various germs. In Yogurt buttermilk you get a collection of cosmopolitan germs that have been gathered up from all over the world. The putrefaction germs produce various poisons. It is noticeable, for instance, that when a piece of beefsteak decays it gets a brown color which is due to the production of brezkatechin. This is produced by the decomposition of animal protein which, in the body, is destroyed by the suprarenal capsules but if a larger quantity is taken than can be destroyed, it is deposited in the skin. When the suprarenal capsules are not longer able to destroy it, it accumulates and you find a person with brown spots on his hands. If you are past fifty years and haven't any brown spots on your hands and have a pretty healthy skin with normal thickness and elasticity and something of the velvety appearance of youth and is not covered over with a sort of parchment, then you may know that you still have some reserve of youth, useful vitality to carry you on perhaps for twenty-five or thirty years, but if you find the skin is getting thin, wrinkled and glistens as though it had been varnished, it is quite another question that means that you are getting old. One of the means by which the body defends itself against germs is the blood cells. About one in seven thousand of the blood cells differs from the others in being white or transparent instead of red. It is known as a white blood corpuscle, cell or leukocyte. There are many different kinds of leukocytes found in the body known by various names such as eosinophiles, polynuclear, mononuclear, and some are small and some large. These polynuclear cells are very active in destroying germs and develop very rapidly when infections occur such as pneumonia or appendicitis. If one has an attack of appendicitis we examine his blood and find instead of one white cell in seven thousand or seven thousand in a single cubic millimeter of blood, that he has fourteen or fifteen thousand in the same quantity of blood and

a few hours later he may have twenty thousand and when we find he has got twenty thousand then you may be sure he has got appendicitis sure enough and is not going to get over it without an operation or if he does it will be a special Providence. Pus may possibly discharge from an abscess externally but more likely it will discharge into the intestine and extend into the whole abdominal cavity and the patient will have a general peritonitis and generally die. It is curious how rapidly this process will sometimes develop. A young lady was here visiting her parents a week or two ago. She had some pain in her side and when we investigated it we found twenty-three or twenty-four thousand of these white cells and we knew there was mischief right away so we hurried her to the hospital, performed an operation and the moment the abdomen was opened out poured a quantity of pus. The inflammation had extended in less than twenty-four hours all through the abdominal cavity and we had a lively battle to save the young woman's life. Twenty-four hours more and there would have been a funeral. When one has appendicitis it is important to give the matter attention right away. If you have any symptoms of appendicitis go to a surgeon right off and do not lose any time. Have an examination of the blood made. If the blood shows only a slight increase of these white cells, then you know the infective process is not going on so rapidly and then it will be safe to wait a little while. Hence this blood examination is a matter of very great importance. Sometimes the symptoms are so urgent it won't be wise to wait for a blood examination. If the surgeon says, "This patient must be operated on right away", don't hesitate, because when performed early, the operation is almost free from danger but when it is performed late, after general infection has occurred, it is really a serious matter. These white cells are fighting to defend our lives all the time and anything that will attack them is a matter of great importance. These cells have many wonderful qualities. They change their form. They haven't any stomach but they seem

to be all stomach. They haven't any mouths but they make a mouth anywhere and swallow anything they happen to be lying against if it is something they are capable of swallowing. These white cells, when they get opposite a place in the blood vessels where there are some germs in the tissues opposite, one of them will bore a hole through the ^{wall of the} blood vessel and tuck itself through as you would a pocket handkerchief through a ring and when it gets through the opening it will close up the opening and the corpuscle will go straight for the germ, will make a mouth and swallow a germ and digest it so that it will disappear and its vitality will have been destroyed. In this way the blood is fighting for our our lives all the time and it is most important that we should have good healthy blood. Forty years ago when a patient would say, "Doctor, I know I have got good healthy blood because quickly." I used to say, "That is no test for the blood." It may be you infected your wound at one time and at another time you did not but really at the present time we know that is a scientific test, that it is quite practically observed and is really a scientific test of the quality of the blood because if one is wounded, if you have a little cut and it doesn't heal nicely but suppurates and pus forms in it and perhaps it is a long time healing, that is an indication that the blood has lost its power of repairing these tissues to some degree. It is found there is great difference in the way people behave after operation, for example. The worst possible subject for a surgeon is a poor drunkard or butcher. A butcher's tissues are in such a bad condition that sometimes if the butcher suddenly cuts himself with the knife with which he has cut beefsteak he infects himself with that knife and his tissues have so little resistance that he gets blood poisoning and dies. It is highly important to keep the blood clean. London surgeons noticed many, many years ago that persons who lived in cities are not so good subjects for operations as people from the country. Inquiry showed that people who came from the country ate little meat while those in the cities ate a large amount of meat. Some years

ago Dr. Lauderbrunten and some other distinguished English doctors went to ~~England~~ **India** to study the effect of anaesthetics. A commission was appointed to go to India and study anaesthetics by experiments upon monkeys and by observing the effects of anaesthetics upon natives there. The commission reported it was almost impossible to kill a monkey with an ordinary dose of chloroform. They had to be given colossal doses in order to kill them. The monkey had a great power to resist the anaesthetic. It was found also that the natives of India were much less likely to die or to suffer serious shock or other injury from the anaesthetic than the English people were. Dr. Lauderbrunten arrived at the conclusion that when a man was supposed to die from anaesthetic it was not really the anaesthetic that killed him but the poisons of his tissues, that the reason why he died was not because the anaesthetic destroyed his life but because the anaesthetic caused his liver and kidneys to cease work and the accumulation of poisons naturally produced in the body over suppuration of the blood which really caused his death. Then it was evident that the reason why the natives of India were less likely to suffer ill effects from the anaesthetic was because of their meager and very clean and wholesome dietary, a diet of rice and simple vegetable products. This process known as phagocytolysis by which the blood cells defend the body against germs depends upon the blood being in fine condition. Then really the principal condition by which we are able to fight disease successfully is the defensive power of the blood. Anything which diminishes the quality of the blood diminishes our ability to fight disease. Persons suffering from leukemia are very liable to infection. In this disease the white cells of the blood are diseased and have not the power to defend the body to a normal extent and the blood contains poisons which set up degenerative processes. Diseased cells finally fail to defend the body but actually attack the body. Metchnikoff pointed this out many years ago that old age is due to the fact that the cells of the body having been depreciated and lost their resistance to some degree, the white cells also being diseased,

acquire a myelen tendency and actually attack the body. The kidneys were degenerated and the same thing has been observed by Metchnikoff and others in the brain and in the walls of the blood vessels and in the liver and various other organs in the body. In this way degeneration takes place in various parts of the body. When the liver is exposed constantly to the influence of toxins of alcohol, the poisons of tobacco and poisons absorbed from the colon and other sources of poison from chronic infection, perhaps chronic suppurating abscess, the degenerative process is set up which finally ends in destruction of the organ. The liver is a poison-destroying gland and that is one of the ways in which the body is defended against the action of germs. Another poison-destroying gland is the thyroid gland. This produces a substance which aids in destroying poisons produced in the body and introduced within the body. A very interesting experiment was made a good many years ago. When Prof. Coker first began removing the thyroid gland he found his patients soon became ill and suffered from a condition which was a result of the loss of the thyroid gland. Some experiments were undertaken upon rabbits, dogs, and other animals. The dogs had their thyroid glands removed and they all died. Another experimenter removed the thyroid glands of dogs and they all lived. Still another investigator operated upon rabbits and the rabbits lived. Experiments were repeated and the dogs died just the same. On investigation it was found that there was a difference in the diet and that the diet made the difference between the life and the death. The dogs that died on experiment were fed meat and they invariably died while the dogs of the second investigator and the rabbits did not eat meat and they lived. The conclusion was reached that one of the functions of the thyroid gland was to destroy the poisons introduced into the body by eating meat or as the result of the decay of putr faction of undigested portions of meat in the colon. At any rate, it is noticeable that persons who suffer from

14,884

exophthalmic goitre are usually persons who have been large meat eaters. I have had an opportunity to observe this matter for a great many years, forty years or more, and I have found yet scarcely ^{ever} a single instance of exophthalmic goitre occurring in persons who have not been habitual meat eaters. This disease is certainly very rare if it occurs at all in persons who never made use of meat, but it is a very common disease and getting to be more and more common in persons who are large meat eaters. When a person suffers from exophthalmic goitre one of the first things is to withdraw all meat. Put him upon a low protein diet and that of itself will sometimes effect a cure. We see sometimes people get well of this disease without doing much of anything except a change of dietary. Some thirty-five years ago a lady was brought here who had been under the care of an eminent Chicago doctor and who had finally told her father, who was a prominent lawyer, that there was no hope for her recovery so she said to her father, "I want to go to some quiet place to die. Take me up to Battle Creek and let me die there." I happened to meet her father last year in Florida and he told me this story which I had not heard him tell before. The old judge who is now ninety years of age told me with ~~xxx~~ tears in his eyes of how he brought his daughter here to die. She had an enormously enlarged thyroid and her eyes projected almost out of her head. Her heart was running away 160 a minute and she was very, very low, could not stand upon her feet at all, was bedridden and for three years had been getting steadily worse. The late Dr. N. S. Davis had told her father that she must die. The judge said, "You told me, when she came, now I believe we can help her. Wait a couple of weeks and we will see what we can do." At the end of that time she was really better. At the end of three weeks she was decidedly better. At the end of four weeks there was every evidence that she was getting well and at the end of three months a wealthy financier came on from New York and there was a wedding at the Baptist Church there and she went away with him apparently enjoying excellent health. She had a slight relapse a year or

two later; came here and spent a few weeks and got well again. A few years ago she was married to a wealthy Philadelphian. At the wedding the jewels were so numerous and valuable that several policemen were required to watch them day and night. One string of pearls hung from her neck to the floor, a very costly collection of pearls. She was really a very beautiful and queenly woman. That was the same woman who was, thirty-five years ago, brought here to die and she got well and has been well ever since and had no operation. The principal thing that was done for her was to change her diet. She had been fed upon scraped beef, rare beef, beef juice, beef broth, chicken broth, and all sorts of things of that kind continuously, the supposition being that these were the things that she really needed to build her up but we have found out those things are not adapted to persons in this condition because the thyroid gland is laboring beyond its normal ability to deal with these poisons and the more they are introduced into the body, the more the gland is excited and grows. When the poisons are withdrawn the gland often returns to the normal condition. Another young lady who was a medical student in an Eastern medical school was taken ill, put into the hospital, fed upon rare steak, and beef juice and things of that sort and she got steadily worse. She happened to have an aunt who was a doctor and the aunt finally went to visit her and found her condition and made a diagnosis of exophthalmic goitre. She brought the young lady here. Of course, the diet was at once changed. This was so bad a case I thought an operation would be justified and recommended an operation but the young lady said she would not have an operation so rather against my advice the operation was postponed and, although the young woman was a little slow in getting well, she finally completely recovered her health. It was just beautiful to see how her skin bleached out. By getting rid of these poisons, the blood becoming pure and the poison-destroying glands having a better chance to do their work effectively, the skin soon became clear, the roses came back to her cheeks, she became plump and the last time I saw here she

was a hardy, healthy, handsome girl. The suprarenal capsules also are very important poison-destroying glands. One of the important functions of these glands is to destroy poisonous pigments which are produced for the most part in the colon by the process of putrefaction. How are we going to keep the blood clean and pure? The three things of greatest importance are pure air, fresh pure cold air, pure water and clean, pure, wholesome food properly digested. In cold weather so many of our people are inclined to keep inside the house, to be afraid of cold weather believing that cold is a terrible enemy, that we must protect ourselves against but Jack Frost is a real friend and we only need to manage him right and he will do us a whole lot of good. This shows the sleeping quarters at the Loomis Sanitarium, Liberty, New York. The house tent devised by Dr. Knopf is an interesting device which can be moved around ~~xxxxxxx~~ ^{to suit the} direction of the wind so that the patient will be protected from the wind and can catch the sunshine in cold weather. The Adirondack Cottage Sanitarium was the first institution of the kind in the United States at Trudeau and in such a place as this everybody is bundled up on the porch breathing the cold air. That is the important thing. Cold water to the skin is a wonderful tonic but the cold air applied to the lung surface is just as important as cold water to the skin. We have about forty square feet of skin and about 2,000 square feet of lung surface so when we apply cold air to the lung surface we are getting a bigger boost than when we apply cold water to the skin surface because we are ~~making~~ effecting a larger area. It is important that the cold air should be breathed not a few moments, but as nearly continuously as possible. If we lived outdoors all the time or in an outdoor atmosphere not infected with germs, we would never see the grippe or sore throat, quinsy, pneumonia, colds, ear aches and that sort of things. These things are unknown. These applications are absolutely unknown to Arctic explorers, to men who go out away up to the North Pole beyond the Arctic Circle and live outdoors, sleep

in a snow bank, These men are absolutely free from troubles of that sort until they get back to civilization again so we can profit by the experience of these men. I think perhaps the time will come when the real winter resort instead of being Florida or Southern California or the Bermudas will be Spitzbergen or some other very far north region. I am hoping that there will be sometime a winter region opened on Hudson Bay or some place that will be accessible when the railroads get through where we can get really fine continuous cold weather. The only objection we have to Michigan in the winter time is that we do not have enough continuous cold weather. I would be very thankful, indeed, if we had this weather the whole winter long. Our patients improve more during real cold weather, their appetite improves, and then the warm weather comes on and we do not feel so well. We do not get on so well, we do not get this tonic effect of the outdoor air, the refrigerating air. At some of these institutions in Massachusetts I found patients with mittens on writing letters home. I said to the superintendent of one of these institutions, "At what temperature do you keep the building?" He said, "Morning and night for half an hour we have a little heat for dressing and for going to bed but never at other times during the day." I said, "What do you do with your patients when it gets very cold?" He said, "Well, then they have to go out doors to get warm." The institution established by that most delightful scientific man and benefactor of his race, Dr. Trudeau, who recently passed away, himself a victim of tuberculosis with the disease far advanced before he found the advantages of the outdoor life in the Adirondacks, was built up by him through a struggle of more than thirty years. Through the success of his enterprise the same sort of thing was encouraged in other places and has extended throughout the entire country. In Switzerland institutions of this kind are very numerous in various parts of the country. The chairs employed at most of these institutions are not made right because the backs are concave or straight instead of

being convex at the hollow of the back. It is a good thing to have an outdoor sleeping room in every home as we have at my own home. Each bed is supplied with an electric blanket with wires running through it so that by turning the electric current on the bed can be warmed up. The bed is warmed up and dried by means of this electric blanket. The moisture from the body is condensed in the bed so the bed becomes damp and when you get into a cold, damp bed, it takes considerable heat from the body to warm it up. The bed clothing should all be brought in, kept indoors so that you will be always dry and warm when the sleeper goes to bed. My outdoor bedrooms are opened on three sides. For many years I slept in a bungalow at the top of a tree thirty feet above the ground. I was driven out by the squirrels and the blue jays. They would come down, get on the roof and scold me every morning at half past three o'clock and the blue jays formed a conspiracy with them and the two together would not let me sleep after half past three so I was obliged to change my sleeping place. By very simple arrangements it is possible to get all the benefit of the outdoor sleeping even without going out of doors. The window tent is a very simple device for this purpose. The window tent may be adjusted so that in fair weather you may have the air coming directly in instead of coming up from beneath. By means of a sleeping tube the cold, fresh air can be conducted to any part of the room. By the use of this device one may have all the benefit of sleeping outdoors and without any harm or discomfort or without becoming cold. Don't forget to get the benefit of all the fresh air you can. If every person here would spend ten hours out of doors in breathing cold air every day they would profit greatly by it. The Eskimo has such an appetite that he can eat fourteen pounds of beef, pork or blubber, fish, seal or walrus or anything that comes along. One exploring party told a story of an Eskimo who ate a whole sheep before he left it. He had an insatiable appetite. Some experiments were made recently to show the

results when various foods were mixed with fecal matter. In the colon undigested food remnants come in contact with germs which are always present there and by the addition of some of the fecal matters to some of these foodstuffs which were then placed in an oven at a temperature of the body for a certain length of time, for three days, and afterwards analyzed, the amount of putrefaction products present was found as shown on the table. In the case of all meats the quantity increased even as high as 17 milligrams in the case of mutton. This is indol and milk and milk products developed only a very small fraction as much as did the meat. The putrefaction products in mutton were 150 times as great as in the case of Yogurt buttermilk. In vegetable foods the putrefaction was very much smaller still, only about one fortieth as much as in the average of meats. In other words meats produce forty times as much putrefaction products as are produced by vegetable foods under the same conditions. When you examine meat as you get it in the market, you find it is already undergoing putrefaction. Sometime ago we obtained samples from one of the city hotels of various cuts of meats as ~~xxxxxx~~^{served} upon the hotel tables. This was just as good meat as could be obtained at any hotel in the United States. In a large sausage we found twelve billion germs to the ounce. In a small sausage almost twenty billion were found, in round steak sixteen billion, in sirloin steak eleven billion, in well done tenderloin steak ~~it~~ there were one billion germs, in tenderloin cooked rare, five billion. The cooking you see does not destroy the germs practically at all. In one case it was found that in a piece of roast beef the germs were actually more numerous after cooking than before because of the inside of the beef was warmed up just enough to encourage the germs to grow with great rapidity. A study of the putrefactive products produced in the human body upon different diets showed that persons who took a moderately high protein diet had six portions of indican on the Folin scale but on the low protein or vegetable diet none at all. On a very low protein diet there was no putrefaction there at all. On

a fruit and cereal diet there was none at all. On a high protein diet of meat and vegetables the result was nine on the scale. No indican should be found in the urine. These putrefaction products ought not to be present because putrefaction ought never to occur in the human alimentary canal. Putrefaction is not present in the intestine of a child. It may not be known to you but it is known to physiologists that the bowel discharges of a child can be put into a bottle, for example, and put away and will not decay but will remain just as they are for an indefinite length of time. There are no putrefaction germs there. At any rate, they are not present in sufficient quantity to produce putrefaction. Isn't meat necessary to make blood is a question that is often asked. We have been experimenting upon this subject for many years upon a large scale feeding people without meat. I have now been superintendent of this institution for almost forty years. The hemoglobin in the same case is increased from forty-seven to sixty-seven per cent., a gain of twenty per cent. This proves, I think, in the most conclusive manner that a fleshless diet promotes blood making instead of a decay of the blood. One way in which the vital resistance is best promoted is by keeping the blood clean. It is the duty of the kidneys to remove poisons from the blood. The kidneys filter out the poisons. We have one table showing the amount of putrefactive products found in the urine of a person on an ordinary high protein diet and another column showing the results of those who live on a diet without meat. The last column was made as the result of examinations of one hundred nurses and students connected with this institution. The quantity was in the first place case 1430, in the other case 1,000, showing that the work of the kidneys was only two-thirds as much. The work of the kidneys depends more than any other thing upon the amount of protein eaten. The acidity was found to be in the meat eaters 2 and in non-meat eaters less than 1. The total nitrogen which represents in a certain way the amount of poison that has been eliminated 16 in flesh

enters and 6 in the non-flesh eaters, urea almost 30 in flesh eaters and only 11 in non-flesh eaters. Folin has shown that urea consists chiefly in the ordinary individual of the excess of protein that has been eaten. It is the excess of protein that constitutes the urea that never enters into the tissues or the work of the body but is simply so much surplus labor that the body has to perform in reducing that protein or meat to urea, then eliminating it through the kidneys. Then the work of the kidneys is almost three times as great. The sulphates represent the putrefaction products and they are three times as great in the flesh eater as in the non-flesh eater. When we come down to the indican, which is the result of flesh eating, Folin found 77 on the average of his subjects while with these subjects, many of whom suffered more or less from inactivity of the bowels, I have no doubt, the indican was only 5. It would have been nothing if these persons habits had been entirely right as regards bowel action. The work of the kidneys is enormously increased by flesh eating. Every doctor knows that. When a man suffering from kidney disease goes to a doctor the doctor says to him, first of all, "cut out your meat." If a man is known to have Bright's disease the doctor says, "Cut out your meat" and it has come to be almost, I think, a universal direction. Here is a table which shows the definite effect of a fleshless diet upon individuals. These are all persons who have lived for a series of years upon a fleshless diet. Forty men and sixty women who had not eaten meat for years were tested and the hemoglobin was found to be on an average 97 in the men and 96 in the women. The prolonged effect of a fleshless diet is not to deteriorate and depreciate the blood but the very opposite. I have not eaten a pound of meat in fifty years and my blood has got the power all the time. I have so much good warm blood I do not have to wear gloves. I have not had a pair of gloves on my hands this winter. I have had a pair in my pocket but have not thought to put them on. I wear cloth shoes the year round, have not had rubbers on or overshoes on my feet

this winter and it never occurs to me that I need anything of that sort. My feet and hands are warm as toast all the time and I do not find it necessary to use artificial means very often. I am thoroughly satisfied from my own personal experience that flesh is not necessary for keeping up one's supply of blood and hemoglobin and animal heat. How about endurance you ask. Can one be strong if he does not eat meat? The impression has been that one must eat a strong animal in order to be strong. To carry out this idea one ought to eat elephants and whales. It seems to be a sort of survival of the old idea derived from cannibalism. The reason why the English race are such lovers of meat is because the old cannibal instinct still leaps and yells in our hearts. I suppose some of you are thinking how happy you will be when you can get out where you can get a bird or a fried chicken or something of that sort. I received a present day before yesterday which astonished me very much. A little box came in and I was informed there was a dead bird inside, a partridge. I said, "I guess I won't open it then. We will bury it as a corpse in a decent manner." I found the name of a lady who was a former patient here and I suspected she had sent this to me as an inclination that she was having all the nice things she wanted now. I wrote her back, "The remains of your friend arrived in due time. I have had the body decently interred. I am very sorry to say that the friends sent no flowers and none of the relatives were present to drop a tear on the coffin." The next day I got a letter from the lady giving me some explanation about it. She said this was one of four partridges that had been sent to her as a present. She said if the partridge was dressed it would keep well for several weeks. I wrote her back and told her I was sorry her letter did not arrive earlier because I did not know about the dressing. If I had understood it, I would have employed an undertaker and had the body properly prepared but my business for many years had been to keep people, birds, and animals of all kinds as far away from undertakers as possible and I added that I buried the

little bird under a rose bush in a corner of the garden. Where did you bury yours? She asked me to drop her a line so I dropped her a line and I asked her to please drop me a line also and when I hear from her I will tell you what she tells me about burying that bird. Now we have an idea that we have got to eat something strong. The savage has an idea if he eats a strong enemy he will get his strength and his courage and his personal powers, perhaps, and quality by eating him. Cannibalism has been practiced very widely among various people. In an early number of Good Health you will see a little resume on the subject of cannibalism and will find it rather interesting, especially tracing its relation to flesh eating. Some years ago Prof. Irving Fisher, the head of the Political Economy Department of Yale University, came here somewhat broken down in health. He found in the simple life almost a resurrection, at any rate, a renovation, and he went home and following the simple life principles he became acquainted with here, especially reducing the protein and cutting out meat from his bill of fare he was so wonderfully helped that he became somewhat enthusiastic upon the subject so he made a visit here for the express purpose of making some tests. He said he wanted then to go back to Yale and examine the athletes of the Yale Gymnasium. I said, "It would not be fair as our folks were not athletes." He said, "I have an idea there is a difference between strength and endurance and I rather think you may come out ahead." He applied the test to thirty-two of our men. He came down the hall, picked up every doctor he found in his office here. How long do you think one can hold the arms out in this way straight? None of us knew before this test was made. Of all our thirty-two subjects the average arm holding was forty-nine minutes. Of the high protein subjects the average was ten minutes. He applied the test to the Yale athletes there, the very same test that he applied here. He said to them, "I have been out to Battle Creek and those vegetarians have done this. Now I want to see how well you can do." He told me afterwards

one young man who was a very healthy and sturdy young man when he had been holding his hands out three or four minutes he began to shake and at the end of seven minutes his hands were going up and down and at the end of seven and a half minutes he nearly fainted away and his arms were so lame and sore that he could not continue his practice for two weeks afterwards as the result of his test. They began to find that out after a few days and they were awfully lame and sore so he was not able to get but fifteen of the athletes to make the test. Their average length of time was only ten minutes or only one-fifth the average of the whole thirty-two of our men. Selecting out fifteen of the best of our thirty-two men and comparing them with the fifteen athletes at Yale the total work done by the fifteen low protein subjects was 1336 minutes and the total work done by fifteen of the high protein athletes, meat eaters, was 150 minutes. In other words, the total length of time that our fifteen young men held their arms out was nine times as long as the total length of time the fifteen athletes at Yale held their arms out. Those men were strong men. It seemed impossible almost to believe this but it simply showed there is a difference between strength and endurance. The explanation is simply this. Endurance is a matter of clean blood and clean tissues because ~~the~~ fatigue is the result of saturation of the tissues with tissue poisons or toxins which paralyze the nerve ending and render it impossible for the nerve impulse to get from the brain or spinal cord into the muscle. When these fatigue poisons were washed out of the tissues then one is rested. Some years ago I had a young man raise a dumb-bell until he could not raise it on ce more. Then I had massage applied for five minutes and then he was able to raise it more times than he did before, almost twice as many times. When a student, I used to take a frog's muscle, attach a weight to it, then apply electricity to it to make the muscle lift the weight up and down. When the muscle was completely tired out I washed the muscle with a little salt water and it at once began working again. Dr. Carrell makes some very inter-

esting experiments. He planted a portion of a chicken heart in a little lymph and it grew on and continued to beat. The little bit of a chicken heart that he planted in this way continued to beat almost four months but it was necessary to coolit off once in a while. Every day or two he had to take the vessel containing the fragments of the heart and put it in a refrigerator where it is brought down to zero and then it stops beating and after twenty-four or forty-eight hours it is warmed up again and goes to beating just as well as ever. In every test that was applied to our non@flesh eating young men, not atheles, they excelled the flesh-eating athletes wonderfully in endurance. The most enduring animal in the world is our friend the gorilla. See what a splendid chest he has got. In this picture the gorilla has caught a tiger, seized him by the back of the neck, and he will kill this tiger or leopard. It is a common thing for the gorilla to kill the ferocious beasts of the forest. There is not a lion to be found in the four hundred square miles that the gorilla claims as his own on the Congo yet this frightful, ferocious creature, the gorilla is a vegetarian like myself and here is another vegetarian, the Minnesota baby, and one can easily believe that if such a ferocious creature as the gorilla can maintain his great strength, vigor and vitality on a non-flxesh dietary, and does not need meat to give it the energy or strength or endurance but gets it from the crude products of the forest, that an angelic creature like this baby was never intended to eat an animal.

I thank you for your attention.

END.

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

Thursday, February 3, 1916, at 8:00 P. M.

Everyone ought to take the morning bath. One does not require great facilities for a bath. A story is told of an Englishman in Madrid who was turned out of a hotel because of an accident in taking his bath. He called for a tub in the morning and there wasn't a tub in the house. They finally brought him a couple of butcher's trays and he established himself in these trays, one foot in each tray, like the Colossus of Rhodes, and proceeded to take a bath. Unfortunately there were cracks in the floor and considerable water went through the cracks and deluged the man below. He complained to the office and the proprietor invited the Englishman to leave. He told a friend of his he would never again have an Englishman in his house. "Why," he said, "These Englishmen are so dirty they have to take a bath every day." In some parts of Spain travelers tell us the custom is to take a bath twice in one's lifetime, the first day of life and the last day. Germs are swarming about us, upon us, and in us. Millions of germs are to be found on every square inch of surface of the skin. The cleaner we keep our skins the less the number of these germs. If one does not take a bath often the germs accumulate because the dead cells of the skin accumulate upon the surface and the debris from the tissues that pass out in the perspiration supplies material for feeding the germs so they grow rapidly. Hence, some clean skins are likely to become diseased skins. Eczema and other skin diseases are most likely to develop on skins that are not kept clean so in the interior of the body the germs swarm everywhere. A drop of saliva planted in an ounce of beef tea will grow and develop until there are millions and millions of germs there, many of which are capable of producing death. A few drops of beef tea in which a drop of saliva has been

grown a few days will kill a guinea pig it is so deadly. This fact explains why ulceration of the teeth and gums are likely to do much harm. I have known children who were puny, feeble, weazen, had no appetite, did not grow any, were dwarfed, simply because of the continual exposure of the body to the influence of poisons generated in diseased tonsils. The influence of local infections upon the body in producing rheumatism and other disorders has been discussed a great deal recently by the medical profession. The first thing an up-to-date doctor does to a patient with rheumatism is to look into his throat to see if he has diseased tonsils. When the diseased tonsils are removed frequently all the symptoms of rheumatism disappear within a few days. Dr.

Benjamin Rush, more than 100 years ago, called attention to the same circumstance. He found a patient who suffered from rheumatism who had a diseased tooth. He had the tooth drawn and the rheumatism disappeared like magic. He refers also to some ancient writers who wrote two or three hundred years ago who had called attention to the same thing so this is not a modern discovery by any means but it is one of these important medical facts which once known had been forgotten and overlooked for a long, long time and now is coming to the surface again. We found these germs are continually working through the skin and the mucous membrane and when they get under the skin they get into the connective tissue where they find an army of centinels which are ready to combat these invading bacteria and the same thing is true in the intestine. When the germs get through the intestine they find cells ready to fight them. Some of them get into the blood. We have fortunately friendly germs as well as unfriendly germs. Many of these germs produce poisons the absorption of which produces decay and a great variety of other disturbances, neuritis, perhaps degeneration of the liver and kidneys, hardening of the arteries and may give rise to many other troubles. The friendly germs are long, cylindrical germs which produce acids. Germs may be divided into two classes, ^{germs} which cause fermentation and germs which cause putrefaction. The germs which produce

putrefaction and suppuration and pus and inflammation are the unfriendly germs. Germs that produce fermentation are acid-forming germs and these germs are friendly. All the putrefaction germs are unfriendly. The fermentation germs produce only acids which are harmless while putrefaction germs produce deadly poisons which give rise to a great variety of degenerative processes. Some of these poisons, indeed, have the virulence of the venom of snakes and are chemically allied to the venom of snakes. The friendly germs are found in buttermilk and especially in what is known as Bulgarian buttermilk which is known to contain a strong and hardy variety of these germs. They grow within the body better than the ordinary buttermilk germs. They are able to live in the colon provided they can be supplied with sugar but they must have some sugar in the colon, otherwise they would die. These friendly germs are used by many, many primitive people and have been from the earliest times. In Central Africa each native family has a gourd in which milk is allowed to sour and they never wash the gourd but, when they take the milk out and use it, they put fresh milk in and the gourd being never washed the fermentation is communicated to the new portion of milk. In Bulgaria sour milk is used very extensively. It is known as Yogurt. Many years ago I saw carried through the streets of Constantinople by men with yokes across their shoulders, earthen pans suspended, three or four from each end of the yokes, carried from house to house peddling the Yogurt in this way. The Turkish and Armenian peasant always keeps a supply of this ferment on hand. Milk is usually eaten in that form rather than in the fresh state. At the foot of Mt. Ararat there is found a germ which is allied to the Bulgarian germ but is somewhat more hardy and produces a more agreeable flavor. In the Himalaya Mountains and in different parts of India the natives have employed a friendly germ from the prehistoric times probably. In Iceland another friendly germ is employed in making what is known as skyr. These sour milk preparations have

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been found of great value in curing up intestinal troubles. We have succeeded in collecting these friendly germs from the various parts of the world, everywhere, from our contact with people who were acquainted with these various germs. In Yogurt buttermilk you get a collection of cosmopolitan germs that have been gathered up from all over the world. The putrefaction germs produce various poisons. It is noticeable, for instance, that when a piece of beefsteak decays it gets a brown color which is due to the production of brezkatechin. This is produced by the decomposition of animal protein which, in the body, is destroyed by the suprarenal capsules but if a larger quantity is taken than can be destroyed, it is deposited in the skin. When the suprarenal capsules are not longer able to destroy it, it accumulates and you find a person with brown spots on his hands. If you are past fifty years and haven't any brown spots on your hands and have a pretty healthy skin with normal thickness and elasticity and something of the velvety appearance of youth and is not covered over with a sort of parchment, then you may know that you still have some reserve of youth, useful vitality to carry you on perhaps for twenty-five or thirty years, but if you find the skin is getting thin, wrinkled and glistens as though it had been varnished, it is quite another question that means that you are getting old. One of the means by which the body defends itself against germs is the blood cells. About one in seven thousand of the blood cells differs from the others in being white or transparent instead of red. It is not known as a white blood corpuscle, cell or leukocyte. There are many different kinds of leukocytes found in the body known by various names such as eosinophiles, polynuclear, mononuclear, and some are small and some large. These polynuclear cells are very active in destroying germs and develop very rapidly when infections occur such as pneumonia or appendicitis. If one has an attack of appendicitis we examine his blood and find instead of one white cell in seven thousand or seven thousand in a single cubic millimeter of blood, that he has fourteen or fifteen thousand in the same quantity of blood and

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a few hours later he may have twenty thousand and when we find he has got twenty thousand then you may be sure he has got appendicitis sure enough and is not going to get over it without an operation or if he does it will be a special Providence. Pus may possibly discharge from an abscess externally but more likely it will discharge into the intestine and extend into the whole abdominal cavity and the patient will have a general peritonitis and generally die. It is curious how rapidly this process will sometimes develop. A young lady was here visiting her parents a week or two ago. She had some pain in her side and when we investigated it we found twenty-three or twenty-four thousand of these white cells and we knew there was mischief right away so we hurried her to the hospital, performed an operation and the moment the abdomen was opened out poured a quantity of pus. The inflammation had extended in less than twenty-four hours all through the abdominal cavity and we had a lively battle to save the young woman's life. Twenty-four hours more and there would have been a funeral. When one has appendicitis it is important to give the matter attention right away. If you have any symptoms of appendicitis go to a surgeon right off and do not lose any time. Have an examination of the blood made. If the blood shows only a slight increase of these white cells, then you know the infective process is not going on so rapidly and then it will be safe to wait a little while. Hence this blood examination is a matter of very great importance. Sometimes the symptoms are so urgent it won't be wise to wait for a blood examination. If the surgeon says, "This patient must be operated on right away", don't hesitate, because when performed early, the operation is almost free from danger but when it is performed late, after general infection has occurred, it is really a serious matter. These white cells are fighting to defend our lives all the time and anything that will attack them is a matter of great importance. These cells have many wonderful qualities. They change their form. They haven't any stomach but they seem

to be all stomach. They haven't any mouths but they make a mouth anywhere and swallow anything they happen to be lying against if it is something they are capable of swallowing. These white cells, when they get opposite a place in the blood vessels where there are some germs in the tissues opposite, one of them will bore a hole through the ^{wall of the} blood vessel and tuck itself through as you would a pocket handkerchief through a ring and when it gets through the opening it will close up the opening and the corpuscle will go straight for the germ, will make a mouth and swallow a germ and digest it so that it will disappear and its vitality will have been destroyed. In this way the blood is fighting for our our lives all the time and it is most important that we should have good healthy blood. Forty years ago when a patient would say, "Doctor, I know I have got good healthy blood because quickly." I used to say, "That is no test for the blood." It may be you infected your wound at one time and at another time you did not but really at the present time we know that is a scientific test, that it is quite practically observed and is really a scientific test of the quality of the blood because if one is wounded, if you have a little cut and it doesn't heal nicely but suppurates and pus forms in it and perhaps it is a long time healing, that is an indication that the blood has lost its power of repairing these tissues to some degree. It is found there is great difference in the way people behave after operation, for example. The worst possible subject for a surgeon is a poor drunkard or butcher. A butcher's tissues are in such a bad condition that sometimes if the butcher suddenly cuts himself with the knife with which he has cut beefsteak he infects himself with that knife and his tissues have so little resistance that he gets blood poisoning and dies. It is highly important to keep the blood clean. London surgeons noticed many, many years ago that persons who lived in cities are not so good subjects for operations as people from the country. Inquiry showed that people who came from the country ate little meat while those in the cities ate a large amount of meat. Some years

ago Dr. Lauderbrunten and some other distinguished English doctors went to ^{India} England to study the effect of anaesthetics. A commission was appointed to go to India and study anaesthetics by experiments upon monkeys and by observing the effects of anaesthetics upon natives there. The commission reported it was almost impossible to kill a monkey with an ordinary dose of chloroform. They had to be given colossal doses in order to kill them. The monkey had a great power to resist the anaesthetic. It was found also that the natives of India were much less likely to die or to suffer serious shock or other injury from the anaesthetic than the English people were. Dr. Lauderbrunten arrived at the conclusion that when a man was supposed to die from anaesthetic it was not really the anaesthetic that killed him but the poisons of his tissues, that the reason why he died was not because the anaesthetic destroyed his life but because the anaesthetic caused his liver and kidneys to cease work and the accumulation of poisons naturally produced in the body over suppuration of the blood which really caused his death. Then it was evident that the reason why the natives of India were less likely to suffer ill effects from the anaesthetic was because of their meager and very clean and wholesome dietary, a diet of rice and simple vegetable products. This process known as phagocytolysis by which the blood cells defend the body against germs depends upon the blood being in fine condition. Then really the principal condition by which we are able to fight disease successfully is the defensive power of the blood. Anything which diminishes the quality of the blood diminishes our ability to fight disease. Persons suffering from leukemia are very liable to infection. In this disease the white cells of the blood are diseased and have not the power to defend the body to a normal extent and the blood contains poisons which set up degenerative processes. Diseased cells finally fail to defend the body but actually attack the body. Metchnikoff pointed this out many years ago that old age is due to the fact that the cells of the body having been depreciated and lost their resistance to some degree, the white cells also being diseased,

acquire a myelen tendency and actually attack the body. The kidneys were degenerated and the same thing has been observed by Metchnikoff and others in the brain and in the walls of the blood vessels and in the liver and various other organs in the body. In this way degeneration takes place in various parts of the body. When the liver is exposed constantly to the influence of toxins of alcohol, the poisons of tobacco and poisons absorbed from the colon and other sources of poison from chronic infection, perhaps chronic suppurating abscess, the degenerative process is set up which finally ends in destruction of the organ. The liver is a poison-destroying gland and that is one of the ways in which the body is defended against the action of germs. Another poison-destroying gland is the thyroid gland. This produces a substance which aids in destroying poisons produced in the body and introduced within the body. A very interesting experiment was made a good many years ago. When Prof. Coker first began removing the thyroid gland he found his patients soon became ill and suffered from a condition which was a result of the loss of the thyroid gland. Some experiments were undertaken upon rabbits, dogs, and other animals. The dogs had their thyroid glands removed and they all died. Another experimenter removed the thyroid glands of dogs and they all lived. Still another investigator operated upon rabbits and the rabbits lived. Experiments were repeated and the dogs died just the same. On investigation it was found that there was a difference in the diet and that the diet made the difference between the life and the death. The dogs that died on experiment were fed meat and they invariably died while the dogs of the second investigator and the rabbits did not eat meat and they lived. The conclusion was reached that one of the functions of the thyroid gland was to destroy the poisons introduced into the body by eating meat or as the result of the decay of putrefaction of undigested portions of meat in the colon. At any rate, it is noticeable that persons who suffer from

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exophthalmic goitre are usually persons who have been large meat eaters. I have had an opportunity to observe this matter for a great many years, forty years or more, and I have found yet scarcely ^{ever} a single instance of exophthalmic goitre occurring in persons who have not been habitual meat eaters. This disease is certainly very rare if it occurs at all in persons who never made use of meat, but it is a very common disease and getting to be more and more common in persons who are large meat eaters. When a person suffers from exophthalmic goitre one of the first things is to withdraw all meat. Put him upon a low protein diet and that of itself will sometimes effect a cure. We see sometimes people get well of this disease without doing much of anything except a change of dietary. Some thirty-five years ago a lady was brought here who had been under the care of an eminent Chicago doctor and who had finally told her father, who was a prominent lawyer, that there was no hope for her recovery so she said to her father, "I want to go to some quiet place to die. Take me up to Battle Creek and let me die there." I happened to meet her father last year in Florida and he told me this story which I had not heard him tell before. The old judge who is now ninety years of age told me with ~~wix~~ tears in his eyes of how he brought his daughter here to die. She had an enormously enlarged thyroid and her eyes projected almost out of her head. Her heart was running away 160 a minute and she was very, very low, could not stand upon her feet at all, was bedridden and for three years had been getting steadily worse. The late Dr. N. S. Davis had told her father that she must die. The judge said, "You told me, when she came, now I believe we can help her. Wait a couple of weeks and we will see what we can do." At the end of that time she was really better. At the end of three weeks she was decidedly better. At the end of four weeks there was every evidence that she was getting well and at the end of three months a wealthy financier came on from New York and there was a wedding at the Baptist Church there and she went away with him apparently enjoying excellent health. She had a slight relapse a year or

two later; came here and spent a few weeks and got well again. A few years ago she was married to a wealthy Philadelphian. At the wedding the jewels were so numerous and valuable that several policemen were required to watch them day and night. One string of pearls hung from her neck to the floor, a very costly collection of pearls. She was really a very beautiful and queenly woman. That was the same woman who was, thirty-five years ago, brought here to die and she got well and has been well ever since and had no operation. The principal thing that was done for her was to change her diet. She had been fed upon scraped beef, rare beef, beef juice, beef broth, chicken broth, and all sorts of things of that kind continuously, the supposition being that these were the things that she really needed to build her up but we have found out those things are not adapted to persons in this condition because the thyroid gland is laboring beyond its normal ability to deal with these poisons and the more they are introduced into the body, the more the gland is excited and grows. When the poisons are withdrawn the gland often returns to the normal condition. Another young lady who was a medical student in an Eastern medical school was taken ill, put into the hospital, fed upon rare steak, and beef juice and things of that sort and she got steadily worse. She happened to have an aunt who was a doctor and the aunt finally went to visit her and found her condition and made a diagnosis of exophthalmic goitre. She brought the young lady here. Of course, the diet was at once changed. This was so bad a case I thought an operation would be justified and recommended an operation but the young lady said she would not have an operation so rather against my advice the operation was postponed and, although the young woman was a little slow in getting well, she finally completely recovered her health. It was just beautiful to see how her skin bleached out. By getting rid of these poisons, the blood becoming pure and the poison-destroying glands having a better chance to do their work effectively, the skin soon became clear, the roses came back to her cheeks, she became plump and the last time I saw here she

was a hardy, healthy, handsome girl. The suprarenal capsules also are very important poison-destroying glands. One of the important functions of these glands is to destroy poisonous pigments which are produced for the most part in the colon by the process of putrefaction. How are we going to keep the blood clean and pure? The three things of greatest importance are pure air, fresh pure cold air, pure water and clean, pure, wholesome food properly digested. In cold weather so many of our people are inclined to keep inside the house, to be afraid of cold weather believing that cold is a terrible enemy, that we must protect ourselves against but Jack Frost is a real friend and we only need to manage him right and he will do us a whole lot of good. This shows the sleeping quarters at the Loomis Sanitarium, Liberty, New York. The house tent devised by Dr. Knopf is an interesting device which can be moved around ~~in any~~ ^{to suit the} direction of the wind so that the patient will be protected from the wind and can catch the sunshine in cold weather. The Adirondack Cottage Sanitarium was the first institution of the kind in the United States at Trudeau and in such a place as this everybody is bundled up on the porch breathing the cold air. That is the important thing. Cold water to the skin is a wonderful tonic but the cold air applied to the lung surface is just as important as cold water to the skin. We have about forty square feet of skin and about 2,000 square feet of lung surface so when we apply cold air to the lung surface we are getting a bigger boost than when we apply cold water to the skin surface because we are ~~making~~ effecting a larger area. It is important that the cold air should be breathed not a few moments, but as nearly continuously as possible. If we lived outdoors all the time or in an outdoor atmosphere not infected with germs, we would never see the grippe or sore throat, quinsy, pneumonia, colds, ear aches and that sort of things. These things are unknown. These applications are absolutely unknown to Arctic explorers, to men who go out away up to the North Pole beyond the Arctic Circle and live outdoors, sleep

in a snow bank, These men are absolutely free from troubles of that sort until they get back to civilization again so we can profit by the experience of these men. I think perhaps the time will come when the real winter resort instead of being Florida or Southern California or the Bermudas will be Spitzbergen or some other very far north region. I am hoping that there will be sometime a winter region opened on Hudson Bay or some place that will be accessible when the railroads get through where we can get really fine continuous cold weather. The only objection we have to Michigan in the winter time is that we do not have enough continuous cold weather. I would be very thankful, indeed, if we had this weather the whole winter long. Our patients improve more during real cold weather, their appetite improves, and then the warm weather comes on and we do not feel so well. We do not get on so well, we do not get this tonic effect of the outdoor air, the refrigerating air. At some of these institutions in Massachusetts I found patients with mittens on writing letters home. I said to the superintendent of one of these institutions, "At what temperature do you keep the building?" He said, "Morning and night for half an hour we have a little heat for dressing and for going to bed but never at other times during the day." I said, "What do you do with your patients when it gets very cold?" He said, "Well, then they have to go out doors to get warm." The institution established by that most delightful scientific man and benefactor of his race, Dr. Trudeau, who recently passed away, himself a victim of tuberculosis with the disease far advanced before he found the advantages of the outdoor life in the Adirondacks, was built up by him through a struggle of more than thirty years. Through the success of his enterprise the same sort of thing was encouraged in other places and has extended throughout the entire country. In Switzerland institutions of this kind are very numerous in various parts of the country. The chairs employed at most of these institutions are not made right because the backs are concave or straight instead of

being convex at the hollow of the back. It is a good thing to have an outdoor sleeping room in every home as we have at my own home. Each bed is supplied with an electric blanket with wires running through it so that by turning the electric current on the bed can be warmed up. The bed is warmed up and dried by means of this electric blanket. The moisture from the body is condensed in the bed so the bed becomes damp and when you get into a cold, damp bed, it takes considerable heat from the body to warm it up. The bed clothing should all be brought in, kept indoors so that you will be always dry and warm when the sleeper goes to bed. My outdoor bedrooms are opened on three sides. For many years I slept in a bungalow at the top of a tree thirty feet above the ground. I was driven out by the squirrels and the blue jays. They would come down, get on the roof and scold me every morning at half past three o'clock and the blue jays formed a conspiracy with them and the two together would not let me sleep after half past three so I was obliged to change my sleeping place. By very simple arrangements it is possible to get all the benefit of the outdoor sleeping even without going out of doors. The window tent is a very simple device for this purpose. The window tent may be adjusted so that in fair weather you may have the air coming directly in instead of coming up from beneath. By means of a sleeping tube the cold, fresh air can be conducted to any part of the room. By the use of this device one may have all the benefit of sleeping outdoors and without any harm or discomfort or without becoming cold. Don't forget to get the benefit of all the fresh air you can. If every person here would spend ten hours out of doors in breathing cold air every day they would profit greatly by it. The Eskimo has such an appetite that he can eat fourteen pounds of beef, pork or blubber, fish, seal or walrus or anything that comes along. One exploring party told a story of an Eskimo who ate a whole sheep before he left it. He had an insatiable appetite. Some experiments were made recently to show the

results when various foods were mixed with fecal matter. In the colon undigested food remnants come in contact with germs which are always present there and by the addition of some of the fecal matters to some of these foodstuffs which were then placed in an oven at a temperature of the body for a certain length of time, for three days, and afterwards analyzed, the amount of putrefaction products present was found as shown on the table. In the case of all meats the quantity increased even as high as 17 milligrams in the case of mutton. This is indol and milk and milk products developed only a very small fraction as much as did the meat. The putrefaction products in mutton were 150 times as great as in the case of Yogurt buttermilk. In vegetable foods the putrefaction was very much smaller still, only about one fortieth as much as in the average of meats. In other words meats produce forty times as much putrefaction products as are produced by vegetable foods under the same conditions. When you examine meat as you get it in the market, you find it is already undergoing putrefaction. Sometime ago we obtained samples from one of the city hotels of various cuts of meats as ~~served~~^{served} upon the hotel tables. This was just as good meat as could be obtained at any hotel in the United States. In a large sausage we found twelve billion germs to the ounce. In a small sausage almost twenty billion were found, in round steak sixteen billion, in sirloin steak eleven billion, in well done tenderloin steak ~~it~~ there were one billion germs, in tenderloin cooked rare, five billion. The cooking you see does not destroy the germs practically at all. In one case it was found that in a piece of roast beef the germs were actually more numerous after cooking than before because of the inside of the beef was warmed up just enough to encourage the germs to grow with great rapidity. A study of the putrefactive products produced in the human body upon different diets showed that persons who took a moderately high protein diet had six portions of indican on the Folin scale but on the low protein or vegetable diet none at all. On a very low protein diet there was no putrefaction there at all. On

a fruit and cereal diet there was none at all. On a high protein diet of meat and vegetables the result was nine on the scale. No indican should be found in the urine. These putrefaction products ought not to be present because putrefaction ought never to occur in the human alimentary canal. Putrefaction is not present in the intestine of a child. It may not be known to you but it is known to physiologists that the bowel discharges of a child can be put into a bottle, for example, and put away and will not decay but will remain just as they are for an indefinite length of time. There are no putrefaction germs there. At any rate, they are not present in sufficient quantity to produce putrefaction. Isn't meat necessary to make blood is a question that is often asked. We have been experimenting upon this subject for many years upon a large scale feeding people without meat. I have now been superintendent of this institution for almost forty years. The hemoglobin in the same case is increased from forty-seven to sixty-seven per cent., a gain of twenty per cent. This proves, I think, in the most conclusive manner that a fleshless diet promotes blood making instead of a decay of the blood. One way in which the vital resistance is best promoted is by keeping the blood clean. It is the duty of the kidneys to remove poisons from the blood. The kidneys filter out the poisons. We have one table showing the amount of putrefactive products found in the urine of a person on an ordinary high protein diet and another column showing the results of those who live on a diet without meat. The last column was made as the result of examinations of one hundred nurses and students connected with this institution. The quantity was in the first place case 1430, in the other case 1,000, showing that the work of the kidneys was only two-thirds as much. The work of the kidneys depends more than any other thing upon the amount of protein eaten. The acidity was found to be in the meat eaters 2 and in non-meat eaters less than 1. The total nitrogen which represents in a certain way the amount of poison that has been eliminated 16 in flesh

enters and 6 in the non-flesh eaters, urea almost 30 in flesh eaters and only 11 in non-flesh eaters. Folin has shown that urea consists chiefly in the ordinary individual of the excess of protein that has been eaten. It is the excess of protein that constitutes the urea that never enters into the tissues or the work of the body but is simply so much surplus labor that the body has to perform in reducing that protein or meat to urea, then eliminating it through the kidneys. Then the work of the kidneys is almost three times as great. The sulphates represent the putrefaction products and they are three times as great in the flesh eater as in the non-flesh eater. When we come down to the indican, which is the result of flesh eating, Folin found 77 on the average of his subjects while with these subjects, many of whom suffered more or less from inactivity of the bowels, I have no doubt, the indican was only 5. It would have been nothing if these persons habits had been entirely right as regards bowel action. The work of the kidneys is enormously increased by flesh eating. Every doctor knows that. When a man suffering from kidney disease goes to a doctor the doctor says to him, first of all, "cut out your meat." If a man is known to have Bright's disease the doctor says, "Cut out your meat" and it has come to be almost, I think, a universal direction. Here is a table which shows the definite effect of a fleshless diet upon individuals. These are all persons who have lived for a series of years upon a fleshless diet. Forty men and sixty women who had not eaten meat for years were tested and the hemoglobin was found to be on an average 97 in the men and 96 in the women. The prolonged effect of a fleshless diet is not to deteriorate and depreciate the blood but the very opposite. I have not eaten a pound of meat in fifty years and my blood has got the power all the time. I have so much good warm blood I do not have to wear gloves. I have not had a pair of gloves on my hands this winter. I have had a pair in my pocket but have not thought to put them on. I wear cloth shoes the year round, have not had rubbers on or overshoes on my feet

this winter and it never occurs to me that I need anything of that sort. My feet and hands are warm as toast all the time and I do not find it necessary to use artificial means very often. I am thoroughly satisfied from my own personal experience that flesh is not necessary for keeping up one's supply of blood and hemoglobin and animal heat. How about endurance you ask. Can one be strong if he does not eat meat? The impression has been that one must eat a strong animal in order to be strong. To carry out this idea one ought to eat elephants and whales. It seems to be a sort of survival of the old idea derived from cannibalism. The reason why the English race are such lovers of meat is because the old cannibal instinct still leaps and yells in our hearts. I suppose some of you are thinking how happy you will be when you can get out where you can get a bird or a fried chicken or something of that sort. I received a present day before yesterday which astonished me very much. A little box came in and I was informed there was a dead bird inside, a partridge. I said, "I guess I won't open it then. We will bury it as a corpse in a decent manner." I found the name of a lady who was a former patient here and I suspected she had sent this to me as an inclination that she was having all the nice things she wanted now. I wrote her back, "The remains of your friend arrived in due time. I have had the body decently interred. I am very sorry to say that the friends sent no flowers and none of the relatives were present to drop a tear on the coffin." The next day I got a letter from the lady giving me some explanation about it. She said this was one of four partridges that had been sent to her as a present. She said if the partridge was dressed it would keep well for several weeks. I wrote her back and told her I was sorry her letter did not arrive earlier because I did not know about the dressing. If I had understood it, I would have employed an undertaker and had the body properly prepared but my business for many years had been to keep people, birds, and animals of all kinds as far away from undertakers as possible and I added that I buried the

little bird under a rose bush in a corner of the garden. Where did you bury yours? She asked me to drop her a line so I dropped her a line and I asked her to please drop me a line also and when I hear from her I will tell you what she tells me about burying that bird. Now we have an idea that we have got to eat something strong. The savage has an idea if he eats a strong enemy he will get his strength and his courage and his personal powers, perhaps, and quality by eating him. Cannibalism has been practiced very widely among various people. In an early number of Good Health you will see a little resume on the subject of cannibalism and will find it rather interesting, especially tracing its relation to flesh eating. Some years ago Prof. Irving Fisher, the head of the Political Economy Department of Yale University, came here somewhat broken down in health. He found in the simple life almost a resurrection, at any rate, a renovation, and he went home and following the simple life principles he became acquainted with here, especially reducing the protein and cutting out meat from his bill of fare he was so wonderfully helped that he became somewhat enthusiastic upon the subject so he made a visit here for the express purpose of making some tests. He said he wanted then to go back to Yale and examine the athletes of the Yale Gymnasium. I said, "It would not be fair as our folks were not athletes." He said, "I have an idea there is a difference between strength and endurance and I rather think you may come out ahead." He applied the test to thirty-two of our men. He came down the hall, picked up every doctor he found in his office here. How long do you think one can hold the arms out in this way straight? None of us knew before this test was made. Of all our thirty-two subjects the average arm holding was forty-nine minutes. Of the high protein subjects the average was ten minutes. He applied the test to the Yale athletes there, the very same test that he applied here. He said to them, "I have been out to Battle Creek and those vegetarians have done this. Now I want to see how well you can do." He told me afterwards

one young man who was a very healthy and sturdy young man when he had been holding his hands out three or four minutes he began to shake and at the end of seven minutes his hands were going up and down and at the end of seven and a half minutes he nearly fainted away and his arms were so lame and sore that he could not continue his practice for two weeks afterwards as the result of his test. They began to find that out after a few days and they were awfully lame and sore so he was not able to get but fifteen of the athletes to make the test. Their average length of time was only ten minutes or only one-fifth the average of the whole thirty-two of our men. Selecting out fifteen of the best of our thirty-two men and comparing them with the fifteen athletes at Yale the total work done by the fifteen low protein subjects was 1336 minutes and the total work done by fifteen of the high protein athletes, meat eaters, was 150 minutes. In other words, the total length of time that our fifteen young men held their arms out was nine times as long as the total length of time the fifteen athletes at Yale held their arms out. Those men were strong men. It seemed impossible almost to believe this but it simply showed there is a difference between strength and endurance. The explanation is simply this. Endurance is a matter of clean blood and clean tissues because ~~the~~ fatigue is the result of saturation of the tissues with tissue poisons or toxins which paralyze the nerve ending and render it impossible for the nerve impulse to get from the brain or spinal cord into the muscle. When these fatigue poisons are washed out of the tissues then one is rested. Some years ago I had a young man raise a dumb-bell until he could not raise it once more. Then I had massage applied for five minutes and then he was able to raise it more times than he did before, almost twice as many times. When a student, I used to take a frog's muscle, attach a weight to it, then apply electricity to it to make the muscle lift the weight up and down. When the muscle was completely tired out I washed the muscle with a little salt water and it at once began working again. Dr. Carrell makes some very inter-

esting experiments. He planted a portion of a chicken heart in a little lymph and it grew on and continued to beat. The little bit of a chicken heart that he planted in this way continued to beat almost four months but it was necessary to cool it off once in a while. Every day or two he had to take the vessel containing the fragments of the heart and put it in a refrigerator where it is brought down to zero and then it stops beating and after twenty-four or forty-eight hours it is warmed up again and goes to beating just as well as ever. In every test that was applied to our non-flesh eating young men, not athletes, they excelled the flesh-eating athletes wonderfully in endurance. The most enduring animal in the world is our friend the gorilla. See what a splendid chest he has got. In this picture the gorilla has caught a tiger, seized him by the back of the neck, and he will kill this tiger or leopard. It is a common thing for the gorilla to kill the ferocious beasts of the forest. There is not a lion to be found in the four hundred square miles that the gorilla claims as his own on the Congo yet this frightful, ferocious creature, the gorilla is a vegetarian like myself and here is another vegetarian, the Minnesota baby, and one can easily believe that if such a ferocious creature as the gorilla can maintain his great strength, vigor and vitality on a non-flesh dietary, and does not need meat to give it the energy or strength or endurance but gets it from the crude products of the forest, that an angelic creature like this baby was never intended to eat an animal.

I thank you for your attention.

END.

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

Thursday, February 24, 1916 at 8:00 p. m.

by

J. H. Kellogg, M. D.,

We say a great deal about preparedness nowadays which is a very essential thing and a thing that we all need. Preparedness for war, however, is not the most essential thing. To be of any value, national preparedness depends upon personal preparedness which depends upon clean blood, the result of right living and clean habits, the simple life, because the real war that we are more interested in even than the European war is the battle that we are waging every day in fighting for our lives. We are assailed by enemies on every hand, so deadly and numerous that they would overwhelm us quickly if it were not for the fact that our bodies are constantly fighting to defend themselves. The white cells of the blood of which we have a million million defend the body, and they are fighting very actively all the time in the body's defence. When they are well fed, maintained in prime condition, they are able to wage a successful fight. That is the reason why when typhoid fever germs get into the water, not everybody has typhoid fever. When cholera attacks a town, everybody is exposed to it but not everybody dies of it. We are all exposed to tuberculosis. I will guarantee that every single person in this room has shown under the X-ray some scars of tuberculosis. We have had the disease and gotten over it because we belong to the select class of individuals that are hardy enough to fight a successful battle against tubercle germs. We represent, if you please, the survival of the fittest. We are aristocrats in that particular, and we ought to be thankful that our parents gave to us bodies that are strong enough to resist this particular form of attack, and so long as our bodies have this power,

we need not be afraid of anything. We can walk through the world fearlessly with all these enemies about us attacking us on every hand, and we may fear no evil so long as we are in ourselves able to make a successful fight. But unfortunately we are constantly, the most of us, engaged in tearing down our own defences. No intelligent people surrounded by enemies who had had given to them a splendid fortification with which to defend themselves, would go to work to tear down their own force or to fight their own guns, to undermine their own fortifications and destroy them. It would be only idiots or imbeciles who would do such things as that. But that is exactly what we are doing to ourselves continually. The defences with which nature has provided us are sufficient to meet anything.

Did you every hear of a week old baby getting small pox? No such thing ever happened. No young baby ever got typhoid fever or scarlet fever or diphtheria or any other disease of that sort. Such things do not happen. Babies do not have diseases. They are born with an immunity against disease but the bad conditions of life to which we are all exposed from our earliest infancy up, gradually destroy our immunity. A baby before it has been leading a civilized life for six weeks, loses its immunity against diphtheria and is likely to get it. In a few weeks more it loses its immunity against scarlet fever; and a few weeks later its immunity against all diseases is gone. Now and then there is a child which retains its immunity. Some people become immune against small pox and do not catch it. Others while they take the disease have it so lightly that they escape any serious injury from it, just as those of us here have had tuberculosis and gotten over it, and while it may have hurt us a little, we are still comparatively intact. We are born with these defences, but we destroy them by our habits of life, by living unnaturally. And that is the most important thing, my friends, that you can

learn while you are here, and everyone of you while you are here should make a careful study of the question, "What is physiologic living"-- "What is biologic living? What does it mean to live naturally, physiologically?" That is the only way in which it is possible for us to live our normal length of life to enjoy a degree of efficiency that belongs to us.

The death rate after forty is rapidly increasing. I have some tables prepared by Dr. Rittenhouse, the actuary of the Metropolitan Life Insurance Company, the greatest life insurance company in the world, the one that has the largest number of policy holders. The statistics which he worked out show that after forty years of age, there is a steady increase in the death rate which means loss of life expectancy. That is, a man over forty for instance, has an expectancy of twelve years, ^{and} instead of living out his twelve years as he ought to, he will live only nine years. If a man is sixty years of age and ought to live twelve years, he may live only nine years.

In the last generation people over forty have lost one and a half to two or three years of life apiece that belong to them. Increase in the average length of life is apparent because we are keeping so many weak babies alive who would have died formerly of infectious diseases, but we are dying of chronic diseases faster than we ever did before. Within the last generation the mortality from chronic disease has doubled. Thirty years ago, only one-fourth of the people who died, died of chronic disease, whereas at the present time the proportion is half. The death rate from ^{some} diseases has diminished the life expectancy. Heart disease for instance has increased 105% in thirty years; apoplexy 137%; kidney disease in Chicago increased 167%; in the whole country 131%. That means that 231 people die now of kidney disease, where only 100 people would have died if we were as healthy in this regard as we were thirty years ago. That shows that there is something wrong in our habits.

What is the cause of this rapid increase in these various diseases? One reason is, our poison habits. Cancer has increased 600% in fifty years. Today one out of seven of all women alive over forty years of age are going to die of cancer. They do not need to. There are 84,000 people dying in the United States every year from cancer and two-thirds of them are women. It is a most awful thing that this condition is gaining ground with such terrible rapidity. Every eleventh man over forty is going to die of cancer. Very few people under thirty die of cancer, and very few people over fifty die of tuberculosis. One-third of all the people who die between twenty and thirty years of age die of one disease--tuberculosis. It is a useless disease and one of the most curable of all maladies. If it were not for that fact, there would not be one of us here today. It is a very curable disease, easily curable if we begin early and it is easily preventable.

One country has recently announced that it has cleared itself of tuberculosis. New Zealand is announced to be free from tuberculosis. The disease has been stamped out in that country by thoroughgoing efficient education of the people and requiring the reporting of all cases of tuberculosis. In New Zealand a reward is offered of \$2.50 for every case of tuberculosis that is reported.

The way to get rid of mad dogs, you know, is to offer a reward for dogs that do not wear any muzzle.

They have applied the same principle to tuberculosis and they have actually gotten rid of that malady, and we can get rid of it. We are having a campaign here in Michigan now, and in the next ten years, we will cut it down ^{to} about one-half or one-third of what it is now. It is already the lowest of any state in the Union except Utah, and there is no reason why we should not cut it down lower still. The mortality from tuberculosis in Michigan is only about half that of the rest of the country. It is 84 to the hundred

thousand, whereas in the rest of the country it is 150. We are greatly favored in Michigan because of our good climate and elevated region which gives us a good circulation of air so that we are favorably located. We have set our mark to get free from this disease before any other state in the Union. We are going to work at it most vigorously until that thing is accomplished.

I have a chart which shows how disease of certain organs of the both is increasing. The number of deaths from cancer in Switzerland is 7.4 to the hundred thousand; in Holland 65; in Japan 40; in Scotland 36; in Africa 35; in Australia 37. We find also that diseases of women are much more common in England, Wales and Scotland than in Japan. In Japan every mother nurses her child. In these other countries, children are nursed by other mothers. In countries where children are less frequently nursed by their mothers, this disease is much more common--cancer of the breast. It is the penalty that nature exacts for neglect of a physiologic function. Cancer is a disease of vegetables as well as of animals and seems to have a similar cause.

Dr. Williams called attention to the fact that cancer in vegetables is likely to occur among trees and other plants which grow in soil which has been fertilized with sewage. Dr. Williams has also shown that cancer is a disease of flesh eating races of animals and men. Cancer also occurs in the trout which are very subject to this disease. Dr. Gaylord of Buffalo who was employed by the United States Government to make an investigation of this subject, ^{he found that} told me last summer that ~~every~~ every fish hatchery in the United States was infected with cancer. Trout and carp are particularly affected by this disease. Whenever you eat a ~~fish~~ ^{trout}, you may be eating a piece of cancer. Don't forget that.

Apoplexy is increasing. Disease of the heart and blood vessels has more than doubled, 231% of what it used to be. It has increased 131% in thirty years. Here is the appearance of diseased and healthy arteries. Externally they ^{both} have the same size. When an artery hardens, it is because of the thickening of its inner coats, just as when a water pipe gets filled up with lime, it

isn't any bigger than it was before, but the walls are thicker and the lumen or space through which the water flows is smaller so the deposits which harden the artery are on the inside and so lessen the size of the opening through the artery so there is less space for the blood to pass through. Sometimes the walls are thickened on one side more than on the other. The

X-ray shows up certain diseased conditions of the heart. The arch of the aorta is the place most likely to be effected first because the poisons brought into the blood first strike here. The chalky or lime deposit in the heart renders it brittle and the heart stretches and stretches and stretches and by and by an aneurysm forms because the heart ruptures and a sack forms outside of it. After while perhaps it ruptures and the person suddenly dies. When the arteries of the heart become hardened a person has what is known as angina pectoris and on taking a little exercise a person will have terrible pain in the region of the heart which will extend down the arm, a most agonizing pain, and by and by the pain becomes present all the time as the hardening process goes on. The heart must keep the blood going. If you do not get the full amount of blood into the brain, you faint away. If you do not get the full amount of blood into the stomach, you cannot digest your dinner. If a deficient supply of blood is sent to the liver the poisons rapidly accumulate in the body, if to the kidneys they accumulate in the blood and you get an attack of uremic coma. If you get a deficient blood supply to the brain you recognize it right away from the fact that you feel confused, you cannot think really. It is an effort to think. You have to cudgel your brain to make it do its work. You have to rally every particle of energy you have to attack a new problem. It is difficult, hard to concentrate your mind. You forget the name of your grandmother or the first name of your first door neighbor. These are all because your brain is not getting blood enough for the reason that the arteries are so small the heart is not able to pump enough blood through. That means secondary low pressure. So long as the heart is strong enough to pump the needful blood through the small arteries, then you do not suffer particularly but feel just as well as ever you did in your life. A lady

said to me the other day, "How can I have such high blood pressure when I feel so well?" "That is the reason why, because your blood pressure is high. By and by your heart will get tired out, will get to the point where it can no longer keep up this high pressure and will simply get worn out as a pump required to do double duty, will get worn? The heart is a low pressure pump that ought to work at a pressure of about 110 which means 110 millimeters of mercury. That would be about four and a half inches of mercury or a column of about eight or nine feet of water. When the heart is normal it works at a pressure of 110 but when it gets up to 210 or 240 or 250 or 300, the heart has to do more than double duty so as long as the heart can do it, you feel all right. By and by the heart begins to fail and get weak. The blood pressure is still high but not high enough and the heart is not able to get all the blood through these shrunken arteries that you need. Then you begin to feel a loss of memory, inability to speak with the same freedom

you formerly did and you do not feel the same amount of vim and energy that you once did. The heart goes on failing and the blood pressure goes down and down and down but it is still too high so you do not know what the matter is. Your doctor perhaps will say your blood pressure is too high and he will give you some medicine to lower it. Then there is a funeral pretty soon. Doctors are learning better nowadays. Our good Dr. Bishop of New York City and others who have given the matter careful study have warned the profession against these pressure-reducing drugs and at the present time Doctors, in general, do not the nitrites and things of that sort that they formerly did so much to lower blood pressure but we must get the blood pressure down by removing the cause. There are some things we can do that are perfectly safe when the blood pressure is too high. A warm bath lets the blood out into the skin and that relieves the pressure and gives the heart more room to pass the blood along. If one has high blood pressure because the arteries of the abdominal region are contracted, he may have an application of diathermy and the diathermy by the heat that it produces in

the interior of the body dilates those arteries and the result is the heart has more room through which to force the blood and the blood pressure falls. Diathermy usually reduces the blood pressure from ten to twenty or thirty points at a single seance. If such a person takes a cold bath it is often more beneficial than a warm bath because the friction upon the skin causes dilatation and the reaction following the cold application causes dilatation of the vessels of the skin and this dilatation lasts longer than the dilatation from a warm bath does and it has the additional effect that the cold application is a tonic for the heart, increases the power of the heart, whereas the warm bath has the opposite effect. Persons who have high blood pressure should never take long hot baths. They will make you feel weak, short of breath, faint. You should avoid any such treatment. It is only possible to give warm treatment to such cases advantageously by taking care to protect the heart and chest by cold applications during the hot application. Hot applications must be very short, two or three or four minutes, but no long hot baths for a person who has a weak heart and has high blood pressure. It is the cold bath that is beneficial. What is the cause of this hardening of the arteries and of this degeneration, this loss of life expectancy, this heart disease, apoplexy and this increase of chronic maladies? The cause is to be found in the poisoning of the fountain of life, the poisoning of the blood stream. Old Father Moses said the blood is the life. If we poison the blood, we poison the life of the body. We strike the source of life at the fountain head. This poisoning of the blood is illustrated very well in general paralysis which is becoming increasingly common. A few years ago a business man was brought here by his friends from Iowa. He was a wholesale shoe man and one of the large cities of the state. He was brought here because his friends discovered suddenly that there were carloads and carloads and carloads of shoes coming in from all the different manufacturers of shoes in the country. He had ordered shoes enough for his business for ten or fifteen years

4

and they had no money to pay for them. They had simply to ship them back again. They began to look into his case and found that he had lost his judgment. He looked just as healthy as he ever did in his life, shouted about ordinary things in a very pleasant way, but when it came to the exercise of business judgment he simply hadn't as much as a ten year old child. He had lost his judgment because degeneration had begun in his brain, the softening process in his brain, the result of continued action of poison in his blood. Men are more effected by this disease than women. Syphilis is the most common form of this poison, a vice disease but it may be produced by chronic constipation. I have seen case after case in which it could not be traced to anything about chronic intestinal inactivity. These colon poisons are about the worst poisons known. I sometimes doubt whether syphilis even is worse. Alcohol and tobacco do not compare at all in their potency for mischief with colon poisons. Tea and coffee are bad but not so bad as colon poisons. These poisons may produce changes in the brain, hardening of the arteries, etc. Because of these degenerative influences alcohol, tobacco, tea, coffee, poisons, colon poison, syphilis, all of these poisons to which we are exposing ourselves continually in the United States and in almost all civilized lands, degeneration is developing rapidly. At the present time we have in the United States one per cent. of our entire population which forms an aristocracy, if you please, of defectives, one out of every one hundred in the United States. These poor insane and imbecile and idiotic and epileptic aristocrats are supported in idleness at an expense of one hundred million dollars a year, and they are multiplying rapidly. This aristocratic class are growing faster than the sane part of the population in some parts of the country in all these subjects. In New Jersey, for example, a proportion in the population has doubled in one generation. There is no hindrance

put up n the marriage of insane people, feeble minded people, and epileptics, and they propagate the disease. A feeble minded man marries a feeble minded woman and every single one of the children would be feeble minded. A man of sound mind marries a feeble minded woman ^{and} the result will be that happens more often in the opposite for these feeble minded girls, Morans, are many times very beautiful girls and they acquire enough knowledge of society and things to conduct themselves in a proper way but they haven't any sense. There are loats of them that are abroad in society at the present day and some poor felbw is captivated by their beauty and the result is a family of feeble minded children is started. One-fourth of their children will be sound minded and one-fourth will be feeble minded and the other half will give birth to feeble minded children or will become fathers or mothers of feeble minded children if they marry others of the same sort. If they marry sound people, however, the children will not be feeble minded. Feeble minded men are not so likely to be attractive and they are generally ne'er-do-wells. They cannot so easily pass themselves off for sound people. Of course, these poor girls do not know that they are feeble minded. They are not responsible for it. It is a newly recognized class of feeble mindedness. We have known about idiots ~~these~~ for a long time. An idiot is a person ~~is~~ that has ~~a~~ ^{the} sense of a child a year and a half old or an infant. A feeble minded person is one that has the intelligence of a child of five to ten years of age. A Moran is a person that has the intelligence of a child ten or twelve years of age. It never develops beyond ten or twelve years of age, never develops judgment or adult intelligence and sense. The men who are tramps, for instance, that call at our back doors for handouts, these poor fellows are Morans. A large share of the criminals are Morans. A large proportion of the crimes of violence are committed by Morans, men who are lacking in intelligence and have no proper appreciation of their obligations to society or the penalties for crime because of their lack of sense, yet they have all the powers of manhood. A lunatic in this country has just as good a right to go to the polls and

vote as the brightest citizen. A feeble minded person or an idiot or a lunatic can walk up to the polls and deposit his vote. There is no law against it. In almost every state of this union a feeble minded person or a syphilitic person or an insane person may marry just as much as a person of sound health and sound mind. We are not half civilized. We do not appreciate the necessity for restricting the liberties of men for the purpose of protection of the entire community. Individualism is too much developed in this democratic country. We represent the democracy gone wild. We have got to establish sanctions and restrictions to control men and women if we are going to live in civilized communities. The man who has acquired a vice disease, who has acquired syphilis, has no right to expect an innocent wife and to impress that horrible disease upon all his posterity. That is a thing I have to meet as a doctor every often. I want to say to you, my friends, doctors have to be put sometimes in a very unfortunate position. When a woman is inquiring, "What is the matter with me, doctor? Do tell me. Why do I suffer so? Why do I have this terrible trouble? Do tell me." He does not dare to answer. He cannot because the law does not permit him to tell the truth about it because the knowledge he has, he has acquired in his professional capacity and he cannot tell the truth. I would not dare to tell you the awful things I might tell you about that thing but it is a thing that has got to be considered. We must have laws about that thing to restrict men. We must make men understand that if they are going to pollute their bodies by vice that they have no right to marry. They have got to be restricted in that particular. They have no right to convey their disease to other people. If a man has smallpox he is not allowed to go about scattering that disease everywhere. A man who has syphilis or any other vice disease has no right to be at liberty going about infecting innocent people. Sometime ago a sixteen year old boy who had been enticed into a brothel and had gotten syphilis was invited to a party of young people in his community where they played various games and one of the games

-712

they played included a forfeit of some sort or at any rate the game involved kissing, a most despicable thing and this boy kissed ten innocent girls that night and within three months of that time everyone of those girls was broken out with a horrible disease and had syphilis upon the lips. It is a thing that our young people are exposed to all the time. In some communities the young men are running wild. They do not have proper influences and the community does not take the proper attitude toward the brothel. The preachers do not say anything about it, the teachers do not say anything about it and the police protects them and the consequence is boys and young men imagine that there is no harm in going to the brothel if you don't get found out, that the only harm is in getting found out. They never hear the preacher or the teacher say anything about it and it stands in plain sight and everybody knows it is a brothel so they make up their minds it is tolerated and the community really winks at it after all and it does wink at it. The brothel is the thing that does not belong in any community. In the United States there is not a single state that does not have a law making it an illegal thing to use a house for any such purpose. The things that are done in that sort of a house are crimes. The acts committed there are crimes and there is a law upon the statute book of every state prohibiting such conduct and making it a crime and the attitude of the community toward the brothel ought to be demand the officers of the town to suppress the brothel and keep it suppressed and if the officers of the town won't do it, it is the duty of the citizens of the town to see that it is done. The citizens ought to rise and tear down the brothel. They have a perfect right to do it because it is a thing that is absolutely illegal as well as immoral. The community must change its attitude towards these veils before there will ever be any progress made in their suppression.

As long as young men are allowed to grow up with the idea that it is a matter of publicity and there is no serious harm in going to happen to them, that if they get sick they can be cured by a doctor and doctors generally smile and laugh about such diseases. At the present time it is

estimated that ten per cent. of the entire population of the United States is suffering from syphilis directly or indirectly, that is, they become inoculated and infected more or less with syphilis. I hope it is not quite so bad as that, yet I would not be at all surprised if that were the actual fact. This is certainly one of the most horrible of all agencies working to cause race degeneracy. That is why this burden of insanity has come to be so onerous. Two billion gallons of alcoholic liquors are used in the United States every year, seven billion five hundred million cigars, fifty-two billion cigarettes, four million pounds of miscellaneous tobacco, nine hundred and forty three million pounds, almost a billion, of tea and coffee and four hundred and thirty thousand pounds of opium and cocaine are used annually in the United States. Besides the thousands of persons yearly destroyed the baneful results of these poisons are passed on to heredity. The poison dose amounts to fifty or sixty grains of poison per capita every day in the United States. The wonder is anybody is sane. At Yale University sometime ago the height, weight and efficiency of the men in the school was tested. It was found that in four points the smokers fell behind the non-smokers 32% in weight, 29% in height, 19% in chest measurement, and 66% in lung capacity. That is why the smokers are short of breath. These tests were made by the late Doctor Steever for many years Medical Director of the Yale Gymnasium. The chief source of colon poisons is the putrefaction of undigested fragments of meat. We had a call this afternoon from a lot of butchers and grocers who have been attending a convention in the town for a few days and we had about 200 call on us here and had luncheon at the Annex this afternoon. I told the butchers we gave them a very cordial welcome here, we recognized them as the chief promoters of our business. If the butchers would all go out of business and the grocers would cease to sell fifty-seven varieties and other things like them, we would have to close our doors. This institution would have to go out of business.

We examined in our laboratory meat fresh from the

butchershop just as it is sold to you to be eaten. When the meat is cooked the germs are not killed. Some of them are killed but most of them are not and they go down into the intestines and grow and develop and multiply there. By the way, this is the time of year when people are very fond of oysters on the half shell. I was up at Grand Rapids day before yesterday to give a little address up there in the evening and they gave us a banquet at the Pantlind Hotel and the first thing they brought around and spread about the table was a large plate with six oysters on the half shell. There they were, alive oysters, alive and kicking, and you could see their little hearts beating. The Governor sat next to me and he saw my plate remain for a few moments until I could get the waiter to take it away and I told him I didn't eat live animals. The Governor said, "Why, don't you eat oysters, Doctor?" I said, "No, I don't know how." "Well," he said, "You ought to learn!" I said, "Governor, how does it feel to have half a dozen little hearts just lying right up against your own heart and beating away there?" Well, the Governor had never thought of that before. He almost shouted and I noticed several people at the table, who overheard the remark, left quite a number of the oysters on their plates which pleased me very much. You know the oyster has heart, kidneys, and liver. The big brown piece that you consider so sweet and nice is the oyster's liver and kidneys. Then there is the large and small intestine for the oyster has intestines too. The oyster has a stomach and some interesting things in it, too, germs of all kinds and slime from the ocean bottom. The oyster is ^{the} scavenger of the sea. The oyster filters the water through its gills and it has a foot although it does not wear shoes. It opens its gills and allows the water to float through. Somebody has estimated that every bit of sewage that goes into the Hudson is filtered through the gills of oysters before it ever gets to the ocean. The oyster lives on this material. That is its diet. It is very particular about its diet, too. The oyster would not eat potatoes or pigs or ham and eggs or Worcestershire sauce, Newberg lobster salad, and things of that kind. He would not touch those things but he is very fond of typhoid fever

and the slime and ooze that covers the ocean bottom. Those are the delicacies that the oyster enjoys. Its intestines, liver, kidneys and things, of course, as long as the animal is alive these organs are working. I wonder if you ever stop to think what oyster juice is. If you take a dog and put him in a box over night and the next morning open up that box, there will be something in it besides dog. If you take an oyster, an animal who has excretory organs that are used for the same purpose as those of the dog, intestines, kidneys and other excretory organs, and you shut the oyster up in a box or in a can or some other place, in the morning there is oyster juice. A short time ago we got some fresh oysters, washed them clean, put them into a jar over night, and the next morning there was a good supply of oyster juice there and we sent into the urinary laboratory without telling the man where it came from what it was. This is the analysis and beside it is the analysis of ~~urine~~ a specimen of urine and you see they are practically identical. That is just what you would expect to find. I would not have told you about that but after the lecture the other night I happened to be in the hotel a little while and a gentleman stepped up and I found he was a newspaper man and he said, "Dr. Kellogg, I haven't seen you for fifteen years. I was down at the Sanitarium about fifteen years ago and there was a little convention there and you told us something about oysters and I have not eaten an oyster since." I thought I would mention a few of these things to you thinking it might be of interest when you are invited out as I have been sometimes. This institution is here chiefly to educate people, to tell people about these things that science is discovering, new things all the time, that have very important relation to human life and health. Most of the facts discovered by science are hidden away in the archives of learned societies and are leaking out where the people can make use of them. The great thing I have endeavored to devote my life to is to lay hold of all these new discoveries that science makes and make them to known to people in every way I possibly can. That is the reason I talk to you here to make these facts known to you.

I do not pretend to be a discoverer myself. I have not time but I gather up the facts that other scientists have worked out and developed in their laboratories and bring them forward here and I take great care never to tell you one thing that is not based upon absolute scientific facts and that is the reason our work has been growing. Forty-one years ago this summer I stood by a tree and had my picture taken along with the rest of the folks at the dedication of the first Sanitarium building. It was a little farm house owned by the late Judge Graves. There were three rooms and a bathroom. The first was a dressing room, the next room was called the wet room where patients got their baths. There was a row of sitz baths around the room and a spray in the middle of the room. The next room was a little room where a kind of electrical tub bath was given. Upstairs we had hot bags, fomentations and things of that sort applied. That was the whole institution and I took charge of the institution forty years ago this summer. I came in in the morning and I found twenty patients here. The doctor who had been in charge left the night before and I arrived the first day of October in the morning. I found twenty patients in the institution. The next morning when I came up from my office there were only twelve patients and you can easily imagine why but from that time we began to grow and never got so low as twelve since that time. In six months we had 100 patients and the number has been growing ever since. Six months after I took charge of the institution we began building a building, the first Main Building that was erected for the Sanitarium. Then we had to put an addition on the south end and later an addition on the north end and later added a story to the top so we had quite a building and then we built a hospital building across the road and then built East Hall and purchased other buildings. Fourteen days ago this very month the fire burned up ~~everything~~ all of these frame and combustible buildings so fourteen years ago we began the erection of this building that we are now in which is a fire proof building and cannot burn. About sixteen years ago there was started an institution up the street to be

conducted as a beefsteak Sanitarium and the runners at the depots used to sing out "All aboard for the Sanitarium. Get a nice juicy beefsteak up there" but somehow the people that came here had got tired of beefsteaks. They weren't coming here for beefsteaks. They had had enough of them at home so not many people went. The place was opened and failed four or five different times and finally a few years ago it was turned over to us and became our Annex. When that building was being put up I had the audacity to announce to the builders that they were building it for us so I watched with a good deal of interest as the construction was going on to see that it was well done for I felt sure we would be utilizing it some time and we are very glad it was built for us for we were able to purchase it at about one-third what it would have cost and at the time we bought it, we should not have been able to build a building of that capacity. I mention this not as boasting but so you will see that this institution has been built up not by means of money or commercial enterprise or commercial sagacity but it has grown through the development of an idea which is simply the idea of biologic living. Intelligent men and women all about the world are coming to recognize the fact that we are under obligations to the great laws that govern our physical frame, our physical functions, that the laws of biology and the laws of physiology are just as immutable as gravitation and the laws which control the cosmic forces of the universe we cannot set aside. In matters of diet, for example, if we are going to eat physiologically we must eat those things that belong to our class. We can find out what that is if we watch the gorilla, the orangoutang and the chimpanzee in the forest. They are our most ancient relatives. They have stuck to the original bill of fare. God told Adam, according to the Bible, that every herb bearing seed and every fruit tree bearing fruit "to you they shall be for meat". Fruits and grains were intended to be the food of man. The monkey still lives upon the original diet that God gave to man, but the human family, but man has

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wandered away from his original path of rectitude and in consequence of his exposure, perhaps to hardships of various sorts, sometimes nearly starving to death because he has acquired the habit of eating everything that every other animal on the face of the earth eats. I do not know of a thing that one animal eats that man does not eat. Instead of restricting himself to his original bill of fare, he eats everything he has a fancy for. Because of this, we suffer from diseases that other animals suffer from. The monkey does not have cancer because he sticks to the original bill of fare. Man has adopted the dog's diet, gnaws bones like dogs and eats the flesh of dead animals like the dog and the consequence is he has the dog's diseases. Cancer is a dog's disease and we haven't any right to have it. It is a penalty for adopting a diet which belongs to a scavenger animal and does not belong to an animal of the high status of man. The thing for us to do is to seek for the old paths as the old prophet said, "Cease to do evil and learn to do well." Learn how to live biologically which is the only way we can hope to live out our length of days and to live the efficient and happy and the useful lives God intended us to live.

I thank you for your attention.

END.

QUESTION BOX LECTURE AT THE SANITARIUM PARLOR, BATTLE CREEK, MICHIGAN,

MONDAY, MARCH 6, 1916,

at 8:00 P. M.

by

J. H. Kellogg, M. D.

Q. Does pyorrhea affect the general health as well as the teeth and gums?

A. It was supposed until recently that pyorrhea, a wasting and ulceration of the gums about the teeth, was a disorder confined entirely to teeth and mouth but now we know that the germs which produce this condition of the gums are absorbed into the blood and travel by the circulation throughout the body and produce, in the joints, rheumatism, in the nerves, neuritis, in the muscles, muscular rheumatism. They produce a great variety of infections. Whenever one has this trouble with the teeth it strongly behooves him to get rid of it and fortunately it can be gotten rid of. It is believed by many eminent physicians that this condition of the mouth may be a cause of intestinal toxemia or auto-intoxication. One who has a disorder of the stomach and intestines, duodenal ulcer, gastric ulcer, or any other similar trouble, should take care to see that the mouth is in a healthy state. In fact, every chronic invalid should see that their mouth is right. So long as the mouth is in a diseased condition, all the rest of the alimentary canal is pretty likely to be for the germs found in the mouth are very highly virulent, infectious and find their way not only into the blood and lymphatics but pass down into the intestine and set up mischief in the stomach. They may be responsible for gastritis, gastric catarrh, and for inflammation of the gall-bladder, and

the formation of gallstones. Fortunately the disease can be cured. The adoption of a non-flesh diet is one of the most important things because these germs live upon such material as is left behind after eating meat. The little fibers of meat are just the right kind of food for them.

Q. What is the effect of a milk, bran, fruit juice regimen upon a patient under weight?

A. The effect of a diet consisting of milk, bran and fruit juice would depend entirely upon the quantity taken. If such a person should take six quarts of milk a day, he would certainly gain in weight but if he should take only a quart or two a day, he would lose in weight. There is no objection to the combination.

Q. Is diabetes a disease of the pancreas or liver?

A. It is generally believed to be of the pancreas. We know now it is not a disease of the liver but of the pancreas in ninety-nine cases out of one hundred at least.

Q. Can gallstones be seen on the X-ray plate?

A. Yes, in about half the cases. If the stone contains a small amount of lime it will be sufficient to cast a shadow upon the screen or the plate so that it can be seen and yet we often find gallstones when the X-ray does not discover them. I operated upon a case a week or two ago in which we found 486 gallstones. In that case the X-ray did not show any but it located some mischief about the gall-bladder. In one case we found 2200 gallstones, most of them, of course, small. In that case the X-ray showed two or three other stones which had a considerable amount of lime in their composition.

Q. Can one's mind be made unbalanced by giving him drugs in his food?

A. Oh, yes, that thing has happened many a time. If a man, for instance, goes to a banquet and mixes in along with other articles

sundry bottles of champagne and wines of other sorts, his mind will very likely be unbalanced before he gets home at three o'clock in the morning. Alcohol is one of the drugs which is pretty certain to unbalance the mind. Other drugs can be abused in the same way but alcohol is more often used for this purpose than any other drug I know of.

Q. If the same man is here in the Sanitarium does he need special treatment to relieve himself of the effects of those drugs?

A. If a man has been accustomed to the use of any drug, if he abandons the use of the drug, the effects are quite rapidly removed in most cases. The old prophet said, "Cease to do evil and learn to do well" and it is amazing how quickly Nature responds when we give her a good chance by right living.

Q. I had typhoid fever about seven years ago. Since then my left limb swells a little and aches a t times. What treatment, if any, would you prescribe for the same?

A. It is quite possible that this person had a phlebitis, an inflammation of the large veins of the leg and is likely to be more or less subject to troubles of this sort the rest of his life but temporary relief can be almost always obtained by hot bathing. Apply a hot fomentation to the leg or get into a very hot bath and let the water run in hotter and hotter and hotter and hotter until it reaches 112°. Take that bath for five minutes and then dash a little cold water over the extremity and relief will be very decided. Heat kills pain. It is good for almost all kinds of pain. There is only one sort of pain that may not be relieved by heat and that is a pain due to acute inflammation. Yet even this sort of pain may be relieved by a proper application of heat. If one had, for instance, a felon on the end of his finger and he put it into a bath of hot water, probably he would feel worse than before. You ought to put it into cold water and that

will reduce the swelling but if he has the toothache, for example, a hot foot bath or leg bath or full bath will almost certainly relieve it. A severe pain at one end of the body, in other words, is relieved by the application of heat at the other end of the body. A severe injury on the inside of the body is nearly always relieved by hot applications to the exterior of the body. Pain is generally due to congestion, to the accumulation of blood in a nerve which presses upon the nerve filaments and produces the pain. If we can divert the blood to some other part by the application of heat, it will afford relief so gallstone colic is greatly helped or renal colic is often completely relieved by a very hot bath or hot fomentations. The pain of gastric or duodenal ulcer is often relieved by a hot bath. It is necessary, however, to remember that the amount of relief will be determined by the area to which heat is applied. I once found a patient had been treated for an hour in the bathroom and felt the pain worse than before. He had pain in the stomach and the fomentation had been applied and it was about a foot square. The attendant was very much surprised that the fomentation did not relieve him. He said, "That is what you said in your "Hydrotherapy" and I have done it and the patient is no better." The patient wanted a hypodermic of morphia. I said, "If you had read the whole book you would have found that the size of the fomentation must be adapted to the size of the pain. This man has a big pain so he must have a big fomentation." So we gave the man a fomentation that reached clear to his arm pits and in five minutes he was completely relieved and so was happy and the pain he had been suffering for several weeks was entirely relieved for the time being. It came back the next day and he came every day for treatment, but afterwards got entirely rid of his pain and was most enthusiastic.

Q. How long should one take the rest cure?

A. That depends upon how much rest you need or how much fat you need. The rest cure is generally given to increase flesh. One of the most important things for these persons is rest. In exercising we are using up energy. Suppose one requires 2,000 calories of food a day or, say, 2500 calories. Suppose he doesn't eat anything at all. This 2500, if he keeps on at work, will be used just the same because food is fuel and so long as the body is kept at work and the heat of the body is maintained, the 2500 calories of fuel must be burned up. 2500 calories of food would be equivalent to ten ounces of fat or twenty-five ounces of starch or sugar. If we burn ten ounces of butter, for example, it would produce 2500 calories, that is, it would raise the temperature of 2500 kilograms of water one degree of temperature. There are $2 \frac{1}{5}$ lbs. of water in a kilogram and in 2500 kilograms there would be about six thousand pounds of water or three tons of water. Then ten ounces of fat would raise a temperature of three tons of water at that rate to 1° . If this man does not take in anything in the shape of food, does not put any fuel into his furnace, it keeps right on burning just the same. He must keep up the fire. If he doesn't, the temperature of the body would go down very rapidly. The man would soon become cold and die. His heart would stop beating so it is necessary that fuel should be supplied. If it is not supplied in the shape of food, it will be taken out of the body itself. In other words, the man who is fasting gnaws his own bones. He is eating himself. He is a cannibal, if you please. He is eating his own flesh and the consequence is, he will lose in weight so a person who is fasting will generally lose in weight at the rate of about a pound a day or about $\frac{1}{80}$ of his weight every day so long as he fasts because he is burning himself up. If one who is fasting lies quietly in bed, he will lose weight only about two-thirds as fast because a considerable amount of fuel that we require each day is to support the energy which we expend in doing work, in walking about. It is surprising how much energy is required to do even very simple things.

The ordinary work of exercising about consumes about twofifths of all the food we eat. A person, in other words, requires about 2500 calories when he is taking exercise, quite active exercise. On the other hand, if he stays in bed he would not require over 1500 calories so if we have a man who wants to gain in weight, say, four ounces a day. That would be equivalent to 1,000 calories of fat so if we should put him to bed the difference between 1500 calories and 2500 calories would be just that four ounces that we want to give him so by putting the man to bed and letting him go on eating just what he is now taking would be sufficient to make him gain in weight. That is equivalent to four ounces of fat and ~~you~~^{we} can let the man go on with his exercise and increase the amount of food he takes by a few calories. Make him eat 3500 calories instead of 2500 calories and continue his activities as usual and he will gain in weight. If ~~you~~^{we} want to get the maximum results we will put him to bed and make the addition to his diet also. We will feed him 3000 or 2500 calories, that is, 2000 calories more than he needs and that is equivalent to half a pound of fat. If we do that, the man is just as certain to gain as the sun shines if his digestion is good so when a person is lean and he says, "Doctor, I want to gain in flesh. Can you fat me up?" "Why, of course, we can." The patient says, "Do you mean it?" I say, "Of course we can." "Are you sure of it?" "Don't I belong to the class of men that cannot be fattened up?" "No, indeed, you do not. Everybody can be fattened up if they can digest." All we need to do is to increase the income so it is more than the outgo. If you want to get a bank account you stop your expenditure and make it less than your income and by and by you will have something to your credit in the bank. That is exactly what the rest cure is for, to get an accumulation. A certain amount of fat is a valuable background for vital activity, a sort of bank account.

Q. Do we need salt in the food?

A. No. We eat it simply because we have a liking for it.

Do not all animals eat salt? No, indeed. I do not eat salt unless I take it by accident. I lived for years without eating salt at all and I know it is not necessary. Out at my house there is a little park and inside of it are sixteen deer. They were all born on the premises and they have never had salt. I have not allowed salt to be given them and they won't eat salt. I think they could be taught to like salt just as you ~~have-~~ can teach a boy to smoke cigars. Animals in the wild state do not take salt very much. Deer in the springtime when they have been living on dry food a long time during the winter, when the ground is covered with snow and the springs are frozen up, they get into a bad condition and I think they suffer from auto-intoxication as near as I can learn and they visit the salt springs and drink freely from the salt water for the same reason that some people go to French Lick Springs, Mount Clemens, and such places where they have salt water for the same reason, to get a sort of clearing out but they do not stay there and drink it all season. Once or twice or three or four times a year they will make a visit to these salt springs. They are thought as health resorts or mineral spring resorts for these wild animals and they have sort of got the habit as some people have. A proof that this is merely habit in the animals is found in the fact that in certain portions of the world, in Central Africa, for example, there can be found no salt. One explorer reports that a handful of salt in that region will buy a man. In all that great area neither the people nor the animals are accustomed to the use of salt or were accustomed to it until it was introduced by civilized men and the same is true of our North American Indians. They ate their native succotash, corn and beans, in the green state cooked together without salt and their simple food that they prepared until within very recent times from the roasting of corn, then bruising the corn, breaking

it up into a sort of coarse meal, then mixing it with water and making
 Tompulla, as they called it, and they always ate this without salt. I knew
 an Indian trader many years ago who spent many years of his life in the
 Indian Territory among the Indians who told me that whenever he went into
 The Indian Territory to trade with the Indians he took a supply of this
 Tompulla with him but he said he always took some salt with him for he
 knew they had no salt. Crossing the ocean some twenty years ago I met a
 clergyman who had been located abroad as a missionary. He was a deacon in
 the Episcopal Church and had been a missionary for more than twenty years
 among the Indians of the Hudson Bay Region. He told me that in the winter
 time sometimes the Indians were obliged to eat the government beef because
 game became very scarce and they got short of provisions and had to live
 on government beef. He said they put the beef to soak over night, the salt
 beef. Then they turned the water off, then they put it on and boiled it on
 for half an hour and then turned that water off. Then they put it back into
 the kettle with some fresh water and cooked it. Why? To get rid of the salt.
 They cannot endure it. An expedition went out to explore the Northwest
 territory about one hundred and twenty-five or one hundred and thirty years
 ago, the Lewis and Clark Expedition. If any of you have ever read the
 account these men gave of their expedition you will remember that they
 record the fact that the Indians ate no salt. They took along with them a
 supply of salt and tobacco they thought sufficient to last three years. They
 used up their tobacco in less than a year and in a few months more had used
 all their salt and they had to live the balance of the time without any salt
 or tobacco. They found they could get along as well as the Indians did
 without salt. A very notable thing occurred. They observed that after
 they had gotten rid of the use of tobacco and salt if they got wounds of
 any kind, they healed remarkably and the ~~wounds~~ wounds of the Indians healed
 very quickly also. They gave an account of an Indian who was badly ~~XXXXXX~~
 torn by a bear, horribly torn and came back with great masses of flesh just
 v-m

turn off and it looked as though he would certainly die but in a few weeks he was just as well as ever. His wounds healed up without suppuration. The people cared so little about wounds that they had a strange fashion among them. Whenever a man was going away and never expected to come back again, they had the fashion of cutting off a joint of a finger and trading in that way, the joint to be kept as a keepsake by the friend. In a few days it all healed over. They seemed to be almost indifferent to wounds and to pain. Their wounds healed so very, very quickly. That is the advantage of having clean blood.

Q. What is good for a cold in the ear tubes?

A. If you have a cold in the ear tubes go straight to an ear specialist and have him take your case in hand right away. The best thing I know as a simple remedy is to apply hot water to the outside and the inside and to inhale steam. Direct the steam at the back part of the throat as far as possible and taking it as hot as possible and repeating it about ten minutes every hour. This is the best remedy I know of. The hot sitz bath will do it also. Keep away from drafts or cold air for awhile and keep the ears well protected.

Q. What is paralysis agitans?

A. It is a disease due to chronic auto-intoxication, to degeneration of some of the antitoxic glands. There are certain glands in the interior of the body which make internal secretions and these glands produce substances which are necessary for maintaining the vital functions. The thyroid gland and some of the little glands at the base of the brain, the suprarenal capsules and possibly the pancreas and the liver, the spleen and probably a number of other glandular structures in the body make these subtle substances which regulate the functions of the body in a remarkable way. The loss of the function of some of these glands through the saturation of the blood with poisons absorbed from the colon is, in my opinion, the

principal cause of paralysis agitans.

Q. Is a little less than half a teaspoonful of soda in a glass of water to which the juice of half a lemon is added in any way harmful to take each morning?

A. If one has hyperacidity and his stomach is producing a great excess of hydrochloric acid, it is better to take that soda to neutralize the acid than it is to allow the acid to continue the irritation of the stomach but the proper thing to do is to get rid of the hyperacidity. The soda is injurious but it may be taken temporarily without injury but not for any great length of time. It has been recently discovered by one of the experts of the United States Public Health Service. There is an account of it in the last number of The Scientific Monthly entitled, "The Energy Value of Food." One of the new discoveries made about vitamins is the fact that soda or baking powder, cooking soda, destroys vitamins. Vitamins are among the most essential elements of our food. They do not enter into the composition of the body but somehow regulate the vital processes and are essential to health and life. Young animals cannot grow without the influence of these vitamins in their food. That is the reason why babies do not do well on sterilized milk because boiling kills the vitamins in the milk and the babies get scurvy. Vitamins are very subtle substances which are present in such small amount it is hard to get enough for analysis. Even hundreds and hundreds of pounds of raw material will furnish such minute quantities of vitamins that it has not been possible up to the present time to make an exact and complete analysis of these substances but a great deal is known about them and it has been found out that the vitamins of bread, for example, of flour, are destroyed if soda is put in with the flour. If flour and milk are mixed together and soda is put in with them and they are baked in the oven, the vitamins of the milk and of the flour are destroyed so that the bread is spoiled. You

should never use baking powder any more for you are simply spoiling your food. If you have baking powder biscuits, or griddle cakes, or self-raising griddle cakes, it is a diet made up largely of fine flour bread, rice and other things in which there is a deficiency of vitamins and the first thing you know you will be getting scurvy or beri-beri, if not in an aggravated form in a lighter form. It may be some of you here have gotten slight touches of beri-beri or scurvy. I have met a great number of chronic invalids who have been living on a diet that is quite likely to produce this condition of beri-beri or scurvy. I

Q. Please describe disease of the blood vessels.

A. The most serious is the hardening, shrinking and obliteration of the blood vessel. When degeneration begins there is an inflammation of the lining membrane of the artery. It gets irritated and thickened and this thickening of the tissues continues so that it gets thicker and thicker. As the process continues the lumen of the artery is getting smaller all the time. By and by it gets so small that hardly a sufficient amount of blood can pass through it. The artery cannot stretch because of the dense fibrous sheath that encloses it so the accumulation takes place on the inside and it gets smaller and smaller till by and by the small artery gets closed up entirely so the parts to which this artery is distributed do not get a sufficient supply of blood. In order that the parts shall get all the blood that they need, Nature makes the heart work harder and that is the reason the blood pressure rises. The heart pumps harder, raises the pressure in the vessels so as to enable them to get a sufficient amount of blood through the smaller arteries. I found this forcibly illustrated some years ago in Porto Rico. A man fell from a scaffold, struck his head upon the cement pavement. His

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skull was badly bruised and his scalp was all swollen up and it was difficult to make out whether there was a depression of the skull or not. We waited awhile and his pulse kept getting slower and slower and slower and his pressure rising higher and higher and higher till we became convinced that he had a compression of the brain and Nature was raising the blood pressure in order to get the blood through the brain. That is one of the most certain proofs of compression of the brain is the rise in blood pressure. We removed a part of his skull and took out a blood clot larger than a walnut, in fact, about as large as three walnuts and it was the greatest wonder in the world he did not die. He made a good recovery and the pressure came right down when we got the pressure removed. Nature raised the blood pressure of the entire body in order to get enough blood through that compressed portion of brain so it would not die. The purpose of this rise of blood pressure was to protect and save from death that little piece of brain structure that was under pressure. When the arteries ^{of the} and kidneys are shrunken after this fashion as in some forms of Bright's disease, the pressure of the entire body is raised in order to get the blood through the kidneys in sufficient quantity to keep the blood purified and the cells and the tissues washed so when one has high blood pressure it should not be expected that it will come clear down to normal again. We can give medicine to bring down the blood pressure but that wouldn't do for the world. If we do that, the very thing Nature is trying to accomplish by raising your blood pressure and which is necessary to be accomplished would be frustrated and Nature would be thwarted in her beneficent ~~ix~~ purpose to save your life and it would be the worst thing we could possibly do for you. The blood pressure is never any higher than it needs to be. Whenever anybody has high blood pressure you may be certain that it is never any higher than it needs to be. If you suffer injury it is not the high blood pressure that does the harm but the thing that causes the high blood pressure. The high blood pressure is

beneficent, remedial and beneficial but the thing you should be afraid of is the poisons that work behind the high blood pressure which is not only causing this inflammation inside of the artery but is causing similar changes to take place in the kidneys, in the liver, the spleen, and perhaps in the spinal cord and the brain. After while there will be deposited all around through the thickened walls of the arteries little masses of fat which will weaken the blood vessels so they will become weak and brittle. If there was not something done to change this the walls would become so rotten they would rupture but Nature deposits chalk so as to stiffen up the walls and make them hard so when a person has this advanced condition of high blood pressure, the arteries in the wrists feel like pipe stems. In very far advanced cases they often feel like broken pipe stems but Nature has stiffened up this wall of resistance. The original artery was tough, elastic, distensible vessel wall but now instead of this it is a rigid wall. It is better than nothing at all. It is like a long pipe that works very well or more like a rubber tube. When one has high blood pressure we want to stop the degenerating process which is destroying the arteries, damaging the liver and kidneys and to lessen the amount of work the liver and kidneys have to do so we say to such a person, "You must live very carefully. You must get your blood clean and keep it clean. You must give your kidneys as little work as possible to do so they will be able to keep the blood clean and give the liver as little work as possible to do so it can destroy the uric acid and all the artery injuring poisons which are likely to be found in the body. It is of the highest importance to know that the body has the very best possible chance to do work of super-irrigation as our Catholic friends say.

Q. Is there a cure for the tobacco habit?

A. Certainly.

QA. Is it wise to stop suddenly?

v-m A. Yes, indeed. An old Quaker had a friend who was much accustomed

to drink and thought he could not stop it. The old Quaker met him one day and said, "Now, my friend, it is easy for thee to stop drinking, just as easy as to open thy hand." "Oh", said he, "I can't understand it. Tell me how." "All right. When thou hast a glass of whiskey and thou art bringing it up close to thy lips, just open thy hand." That would certainly be quite a sufficient remedy so the cigar and tobacco smoker has nothing at all to do but as he is placing the cigar to his lips to open his hand and the cigar will go to the gutter where it belongs. A great many people smoke merely from force of habit. A great many men smoke simply because they have got the habit of smoking. They do not feel any different if they do smoke than if they do not smoke. They get the habit of having something in their mouth. An English physiologist gave a very interesting explanation of this sometime ago. You have noticed that when you are thinking hard about something you often put your fingers to your brow or upon your upper lip or some people scratch their head a little, twist their mustache, or do some other thing that will stimulate a nerve but most of these things people do are generally about the face. It may be also chewing a toothpick or chewing gum or biting the end of a cigar. A great many people get that habit of association of work with a cigar, with smoking. They cannot think, cannot work, without that cigar in the mouth. I have a similar habit myself. I have for many years practiced writing and correcting proof sheets and that sort of thing that I cannot read without a pencil in my hand. If I ~~had~~ ^{have} a book to read or a paper to read I immediately begin to look around for a pencil. Many men smoke because they have the habit of stimulating their thinking and nerves and brain by this contact of the end of the cigar in the mouth. I have met scores of men who didn't know whether their cigar was lighted or not if they didn't see the smoke coming from the cigar. I have seen men puffing away at a cigar that had not been lighted for half an hour yet they were just as comfortable as though they

were smoking. Horace Greeley came in one day and sat down and was writing an article, had his feet over a register. After writing for two or three hours somebody suggested to him, "Mr. Greeley, there is no heat coming from that register." He said, "Why in the world did you interrupt me? I was toasting my feet very comfortably." He was very comfortable so long as he had his feet over the register. When someone interrupted him he began to get cold right away so many people have nothing at all to do in stopping the tobacco habit but just simply to drop it out. They do not miss it at all and there is a surprisingly large number of such people. We have a great many people come here who have been in the habit of smoking and it is surprising how little trouble there is to old smokers under the regimen here at the Sanitarium with no smoking room and no associations to suggest smoking about there; it is surprising to see how quickly the habit is dropped off. Then there is another thing that is interesting to me and that is the fact that the dietary seems to have a very strong influence upon the smoking habit. Some years ago I met in the car a gentleman who came by and said, "Dr. Kellogg, how do you do. I have never spoken with you but I have been at the Sanitarium all summer. I am not a patient but I am just a boarder." I said, "I suppose you are stopping with us because you like the diet then." He was perfectly well. He was at that time engaged in building this interurban road that we have here running to Kalamazoo. He said, "I am stopping at the Sanitarium because I like the diet and I like it all but one thing, you know, while I take the diet I cannot smoke. After I have been at the Sanitarium for two or three days the tobacco makes me sick and I cannot smoke." Another case of a man who was a great smoker after discussing his wife's case with him, she said, "Now I want you to talk to my husband and persuade him to stop smoking." He spoke of it once and said, "I have almost stopped already. I have been here three days and after I get two or three puffs of a cigar I feel kind of sick and I have to throw it away. I have nearly stopped already." I

remember a gentleman a good many years ago from Lexington, Kentucky. He had been here six weeks and was going away. He was the proprietor of a large tobacco warehouse. I said to him, "I hope you are not going to return to smoking again after you go home." "Oh, no," he said, "That is what I came up here to get rid of." He said, "Dr. Kellogg, I have told one hundred lies about that thing. I have ^{said} more than one hundred times, "This is my last cigar. I am never going to smoke again but the next morning I would get up and light my cigar and go ahead just the same as ever but I hadn't been here a week before I found I had lost my appetite for tobacco. There is something about this diet that seems to destroy it. After I had been here a few weeks I was walking downtown with a gentleman who was smoking and the wind blew the smoke across my face and I couldn't stand it. It made me feel a little sick. I didn't like it a bit. I know I shall never smoke again!" I remember old Uncle Joe, a man I found in the gutter some twenty years ago in Chicago. His brother was a member of the supreme bench in Tennessee. Poor Joe had been the black sheep of the family, had wandered away, and at sixty years of age found himself in the gutter. I succeeded in getting him out of the gutter, getting him started, got him sobered up so that he realized something of the situation and persuaded him to stop his tobacco and whiskey all at once suddenly. He stopped right off. He was rather melancholy for several days but I soon found a job for him making bean soup for the other poor down and outs just after the World's Fair some twenty-two years ago next fall. I opened a soup kitchen in Chicago and used to feed 1500 to 2000 people every day and Uncle Joe used to get up at three o'clock in the morning and cook the bean soup for them. I said to Uncle Joe one day, "How long since you smoked?" He said, "I have not smoked once, Doctor. I cannot smoke. Why, since I have been living on this bean soup the very smell of tobacco positively makes me sick. I shall never smoke again." I think he is still alive

in the Soldiers' Home, nearly eighty years of age, and I am sure he doesn't smoke. He thought that it was a Providence of circumstance, a miracle, because his appetite for tobacco had disappeared so quickly, within three weeks. He had got so far away from it that it made him sick. I think it ~~was~~ ^{is} a very tangible sort of miracle because I have seen the same thing done for so many hundreds of people. It is a beautiful thing while these principles all dovetail one right into the other. If you do right in one way it is easier to do right in another way. If we live on the right diet our instincts and appetites become natural and the appetite for liquor and tobacco and other unwholesome things drops off just as the dead limbs drop off a tree.

Q. In case of hyperacidity of long standing without ulcer, what length of time on the right diet would you presume would be required to bring the stomach to a state of normal acid secretion?

A. It is difficult to make an exact prediction but one ought to see a wonderful change in two or three weeks. In two or three months there should be a very radical change.

Q. Are strawberries injurious to people who have rheumatism?

A. No. These acid fruits contain bases and alkalies. The effect of eating acid fruits increases the alkalinity of the blood. Some years ago I put a man on a diet of strictly fruit for a week and in three days after he began to live on a fruit diet the urine became alkaline. There was not acid ^{enough} in the body to purify the urine.

Q. Is transient albumin with or without casts curable?

A. Yes. In such cases this symptom can be made to disappear by a right diet. In the majority of cases it is associated with either constipation or a too high protein diet. Such persons will usually see a trace of albumin if they eat freely of eggs or meat.

Q. In an X-ray report what is meant by constant deformity

of the duodenal bulb; spasm of the ileocecal orifice and how serious are these things?

A. We sometimes are seriously in doubt whether we ought to allow these X-ray reports and other laboratory findings to go about but, on the whole, I think it is better to let them get out and let people become intelligent with reference to these matters. Every man has a perfect right to know all he is capable of comprehending in relation to himself. A constant deformity of the duodenal bulb means at the point where the duodenum joins the stomach it spreads out and forms what is known as the duodenal bulb which ought to be symmetrical. This may become deformed in shape and the bulb does not spread out as it ought. That means there may be something growing there. There may be a distension there around that point which will change the shape of it a little. Perhaps there has been an ulcer there and the ulcer has contracted it. At the ileocecal valve there are two structures, two little flaps which constitute the ileocecal valve and a little further on is a thickening of the muscles which constitute a sphincter. As food comes down the small intestine this sphincter shuts up so that food cannot pass on through. Sometimes this becomes the seat of spasms. When this occurs it is probably due to irritation from an inflamed appendix, perhaps. That inflamed appendix may possibly be bound by adhesions here and these adhesions may give rise to this spasm. It may be due to other causes, even reflex causes. After material has passed through into the colon these flaps open and allow it to go through but when there is pressure in ~~the~~ a backward direction that presses against the valve or valves which shut up so it cannot come up as long as this valve remains competent.

Q--Is an operation absolutely necessary for an inflamed gall-bladder?

A--No, not always. The inflamed gall-bladder may recover. Inflamed conditions of the interior of the body may recover as, as the outside of the body. Simple inflammation of the gall-bladder does not require an operation, but an inflammation of the gall-bladder that ~~requires~~ recurs continually and cannot be cured, requires an operation. There are such cases. The gall-bladder sometimes becomes so badly inflamed, it must be made the subject of operation. Fortunately, the operation is not at all a dangerous one. We have had many such cases and have not had a single case of that sort that did not recover.

Q--If the heart will not permit an operation, can a floating kidney be kept in place?

A--A floating kidney does not require an operation, heart or no heart. We used to operate on every floating kidney, but it is very rare indeed, that a floating kidney requires an operation. I have not done an operation of that kind I think for more than twenty years. The floating kidney falls down because the colon is attached to it. The over-stretched colon drags it down out of place. All that is necessary is to apply a strong supporter so as to relieve the tension and the strain and the difficulty will be at once removed.

Q--My heart beats 96 a minute part of the day, often slows to 76. What is the cause?

A--It is probably a little excited during the digestive process.

Q--When a child craves sweets and eats it, is it a sure sign it has or will have diabetes?

A--By no means. We are all born with a sweet tooth. Sugar is a good food for us, but not cane sugar. The sugar we find in fruits is whole-

some, and if we take care to chew the food properly and mix with it a proper amount of saliva, then all the starch of the food we eat will be converted into sugar.

Q--Is there a sure cure for diabetes?

A--No, I am sorry to say there is not, but practically every case can be wonderfully helped. I was talking today with a gentleman who came here a few weeks ago, and at that time was discharging 180 grams or 6 ounces of sugar every day. Of course, this was a great loss of food material. He had not been here a week before the sugar had entirely disappeared and he is going home tomorrow without any sugar. It is the usual observation here that no matter how much sugar the patient has when he comes to the institution, inside of four days, he is free from sugar, and with the proper management and with the proper co-operation on the part of the patient, cases are very rare indeed in which the sugar need ever return again save a mere trace. We frequently encounter a trace because we are all the time trying to increase the amount of starch and we may get it up to the point where there is little more than the patient can tolerate, then we drop back again and go on with our training for a time and then try again and so keep on raising the starch till the highest point of tolerance attainable has been reached.

Q--Is meat digested in the stomach?

A--It is broken up in the stomach. The connective tissue is dissolved in the stomach, but the meat is not completely digested in the stomach. It requires the action of the intestine further down.

Q--Should a hyper eat two or three meals a day?

A-- That depends upon how rapidly the food leaves his stomach. If the food stays in the stomach six or seven hours, it is better to take but two meals a day, and the majority of persons who come here would be far better off to take the two meals a day. I have not taken more than two meals a day in fifty years, and I would not know what in the world to do with a third meal. Half of you sitting in this room eat your dinner while your breakfast

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is still in your stomach, then when you eat your supper, there is ~~still~~ ^{breakfast} and dinner both still ~~in your stomach~~ in your stomach and that is one reason why you have so much trouble, why your stomachs do not get rid of hyperacidity, because they never get a chance to rest. The most important thing for the sick stomach is rest, and that is why people are sometimes benefited by fasting. You had better fast than not to give your stomach any rest at all. But the best way is to give it a little rest every day. Breakfast at half past seven or eight o'clock and dinner at two or half past two o'clock and no supper is the plan which will give you good sleep at night, refreshing rest and a good keen appetite in the morning. Then I am sure for nine-tenths of all the people here, that plan is by far the best.

Q--Give your opinion of the injurious effects of smoke and soot on health.

A--The effect is nothing like so bad as you would think it was. It would seem as though it must be very bad, yet as a matter of fact, we cannot prove it. So we have for instance in London, a lower rate of mortality in the city of London than in the rural districts around London with all its fog and smoke. London has a lower death rate than the country districts around London. I have been around London half a dozen times and I have rarely ever been there that I have not met some one who told me they had come down to London to get a change for their health. I am not recommending soot by any means. It is a most expensive thing. It is an awful waste of fuel to allow it to go up the chimney instead of burning it under the furnace, and it soils clothing and worries the dry-goods merchant and makes an enormous amount of extra work for housekeepers, but as a matter of fact, I do not know of any positive facts to prove that it ~~is~~ has a particularly pernicious effect upon health.

Q--What is the cause of hyperacidity?

A--Constipation is the principal cause.

Q--Does ulcer ~~xxxxxx~~ run into cancer?

A--I am sorry to say it does. Some of the most eminent surgeons living at the present time are very sure that every ulcer of the stomach is a potential cancer of the stomach. When anybody has ulcer of the stomach, that person is very liable to have a year later, or several years later cancer of the stomach. Hence, a person who has ulcer of the stomach should get it cleared up as ~~xxxx~~ quickly as possible. Fortunately, this is not true of ulcers of the duodenum. That is the rarest place in all the body for cancer to occur. When need not have any fears because he has ulcer of the duodenum. People have ulcer of the duodenum at least four times where they have ulcer of the stomach once. If you have an ulcer in that region anywhere, it is probably in the duodenum.

I thank you for your attention.

End.

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QUESTION BOX LECTURE AT THE SANITARIUM PARLOR, MONDAY

MARCH 13, 1916.

at

8.00 P. M.

by

J. H. Kellogg, M. D.

Q--Is condensed milk claimed to be sterilized safer for general family use than commercial milk?

A--Yes very much. Though in using sterilized milk or in feeding it, or taking it as an exclusive diet, one should be very careful to take some fresh fruit or fresh vegetables along with it. When milk is sterilized, the vitamins of the milk and the alexins are destroyed. There is something in the milk that is destroyed by the process of cooking. Nature is a wise caterer. Nature knows exactly what we need and supplies us with precisely what we need. In natural foods, there is everything we require for perfect nutrition and for maintaining the body in the finest possible condition, but when we manipulate these natural foods, subject them to artificial processes we do not ^{know} altogether what we do to them, but we are finding out more and more that cookery and all the artificial processes employed in the preparation of food have a tendency to deteriorate them very much. Some one has said that man is the only animal that spoils his food before he eats it. The rabbit, the squirrel, the chimpanzee, the gorilla, all the creatures that live in the forest, even the savage man takes food as it comes right from the hand of his creator prepared for his use. What a beautiful thought it is that the same God that made us set a table for the sustenance of all creation. Every animal ^{finds} ~~xxxx~~ at this great banquet table, prepared by the creator something exactly suited to its needs and each animal but man has the good sense to select the thing best for it and to take it in its finest condition as God made it. Man takes not only what belongs to him naturally, but he seizes

everything that belongs to every other creature also, not only that but he selects the food that is made in its pristine purity and beauty and perfection and spoils it deliberately before he eats it. Think what the cook does in the kitchen. The kitchen is the nursery of diseases. You would not any of you ^{have} been here tonight probably if there had not been a fiend in your kitchen cultivating disease, manufacturing maladies and miseries for you. Some years ago, I read a story in an English paper of a certain Lord who was about leaving the place where he had maintained a large establishment for many years, and as he was going, the doctor came and said good bye to the cook and placed twenty guineas in his hand. He said, "I owe you this and much more. If it had not been for you I never should have had anything to do in your master's family, but your services have made me rich." The cook goes to work and spoils food and the miller spoils the food. Every ^{body} ~~thing~~ who has anything to do with it does something to spoil it. For instance, each grain of wheat is put up in a sterile package, developed from within and is all enclosed in a germproof covering so that it is a sterile package of food. The mission of the miller is to take this and grind it up. The savage miller does something else to it before he grinds it. The Pueblo Indians, for instance, around the western part of New Mexico and old Ft. Yuma and in other parts of western New Mexico where you find the Indians living still in their native state, right along side the Indian huts or on the roof of the hut, ^{are} some great sheets of white cloth all covered with wheat drying in the sun. If you go into one of the houses you will find heaps of wheat drying in the corner mixed up with pebbles and dirt, so unclean you would say it was not fit for food, but before any of it is eaten, the Indian washes it many times until it is clean as it can be. Then he spreads it out in the sun and grinds it in a hand mill or in a ^{strong mortar} ~~strong mortar~~ and makes the most delicious toothsome bread you ever tasted in your life out of that thoroughly washed wheat. Your miller does not do that but takes the wheat and brushes it to clean ~~ix~~ it to a certain degree, but it does not get entirely clean. In the little crease

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of the kernel there are some very ~~xxxxxx~~ mean germs and they are hiding there all the time and that is all ground up into the flour, so if you examine under the microscope or let grow in a ~~xxxxxx~~ ^{culture} tube, the very cleanest flour you can find, you will find it filled with molds and germs of various sorts. When the wheat is growing, dust is often raised by teams going along the road and this dust is blown over the wheat field and it settles down all over the wheat. That dust is not sand simply, but it is filth of the worst sort, animal excreta powdered up fine. These animals bring different kinds of germs so you have scattered over that wheat field, all sorts of germs and when the miller grinds the wheat,

The germs are all mixed in with the flour and that is one reason why the housekeeper has such hard work making bread. Today she makes good bread buttomorrow she makes it in exactly the same way with some new flour and it does not work at all. Because that flour happened to come from another place it had some different kinds of germs in it, you see, and they grew right along with the yeast and upset the calculations of the housekeeper. It is a constant source of disturbance to the housekeeper to deal with the germs in the flour so you see the modern miller does not improve upon that wheat. The wheat is pure and clean inside but the miller mixes up the dirt and the germs all together in the flour so as we get the flour it is not really in a wholesome state. If we washed the wheat thoroughly as the savage does and then ground it, it would be a different thing. I am glad to tell you that the bread you eat upon the tables here at the Sanitarium is prepared from wheat that is washed just as the savages wash it. The wheat is immersed and scoured over and over and over until it is thoroughly clean. Before the wheat is ground it is white, clean and polished. We would hardly feel like using for our patients here commercial flour for it is not clean enough. Our flour is made in a special mill and the very best wheat from the Northwest is obtained and it is cleaned by all the processes known to the miller; then it is finally thoroughly washed as the savage washes it. Then it is ground so we know it is clean. It would be idle for me to talk to you about the germs in beefsteak and then feed you just as many germs in graham bread or brown bread, for example. It would be very inconsistent so we prepare ourselves for such criticism. We want to be as nearly fire proof as possible so with all our food we take the greatest possible care to see that there are no germs in it. Every leaf of lettuce used and every stock of celery served upon the table, every apple, orange, grape, and cucumber, everything that goes upon our table that has not been cooked goes through a process of sterilization. It is thoroughly washed, then it

is immersed in peroxide of hydrogen, baptized in it, if you please, and remains in it for several minutes until the peroxide has had a chance to kill every single germ and parasite of any sort that might be present so we know that everything that goes upon the table is clean. The miller does another thing. Just underneath the bran covering of the wheat there are deposited some of the most precious elements of the food. There is found there not only the phosphorus which builds the brain and the protein that makes the muscles and the salts that are necessary for the bones, but besides that there are found there certain subtle substances which were not even known to exist until quite recent times and these substances are known as vitamins. Twenty years ago when there was an outbreak of beri-beri on board ship the ship was put in quarantine. When in an army a few persons were found to have beri-beri these were carefully separated from the rest and quarantined because it was supposed beri-beri was an extremely contagious or infectious disease. Now it is known that there is no contagion at all about beri-beri but that it is a deficiency disease. If the miller is allowed to do what he wants to do, to take out all the bran and the coarse middlings and feed us just the fine white portion of the grain, if we do live on that as an exclusive dietary or cook it with sterilized milk or butter or bread prepared in that way, we would every one of us get beri-beri because beri-beri is a deficiency disease. It comes from eating rice from which the bran has been removed or from eating hominy prepared from corn from which the bran has been removed or fine flour bread from which the bran has been removed for the vitamins are associated with the bran, that is, vitamins the absence of which results in beri-beri are found in bran. We are just beginning to recognize the value of bran which the present farmer has known from time immemorial. The German farmer and the English farmer and the American farmer have been thoroughly acquainted with the value of bran for stock. Whenever a horse was off his feed or

an ox he always got a dose of bran and bran would always help him out. The animals would eat a quantity of bran mash and in a short time would get the bad germs eliminated and the tongue would clean off and the breath would get sweet and the animal would get an appetite. I have known that very thing to happen to some people and it is really a strange thing that we have only come to believe this principle that every farmer has been perfectly ^{well} acquainted with and has been using for his horses, cows, pigs, and even the hens that we should only just now begin to apply that same principle to human beings that we are just like other animals as regards our digestion and other of the primary animal functions of the body. We are right along with the rest. We are all on the same foundation. We cannot ignore these principles of digestion any more than we can ignore the principles of gravitation. We are all subject to the laws of gravitation and the laws of digestion so we must observe the things that are right for us. The great problem before the civilized part of the human race at the present time is to find out how to return to Nature. We have gotten so far away from Nature that we have begun to degenerate at an awful rate and the time is not very far away when degeneracy will be advanced to such a degree that it will be impossible to hold civilized society together unless we turn square about and make a reform. Two or three years ago I was at Austin, Texas, and I spoke in the large hall there of the state university and said something of that sort. The next day the superintendent of the state insane asylum located there said, "Did you see what I wrote in my report last year?" I said, "No." I did not happen to see the report." He said, "I said just what you said. I said to the people of Texas, 'if we do not do something to stop this increase of insanity in Texas, it won't be many years before the insane population in our institutions will become so numerous that they will break out. They will out number the sane and

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will break out of the asylums and put us sane people in and Texas isn't anything like so bad off as New York." Sometime ago I was talking to the secretary of the State Board of Charities of Illinois and I asked him how many lunatics they had down there in Illinois and he said, "Well, we have fifty thousand of them shut up. That represents the number we have caught, but how many there are loose yet we do not know. I think there are about twice as many loose as we have caught" and I dare say his estimate was right. Dr. Davenport says there is at least one mental defective in every one hundred in all the people of the United States. In other words, in our one hundred million population we have a million of these defectives, insane, imbeciles, feeble-minded, and criminals. Just think of it. An aristocracy of lunatics, idiots and imbeciles, a real aristocracy too because they live in idleness and the rest of us are all working for them and have to support them. There are no restrictions upon them. A lunatic can walk right straight out of the asylum if he can make the doctors think he is steady and straight so that he is better, he can walk right out and walk straight up to the polls and cast his ballot. There is nothing to hinder him and nobody knows how many lunatics there are going to the polls every year. In fact, the way politics gets to going some times it would appear as though they there might be almost in the majority.

Q. Can pernicious anemia be cured by removing the spleen?

A. There is a form of anemia known as splenic anemia which has come to be recognized in recent times as anemia which is associated with a large spleen and most remarkable results have followed the removal of the spleen under these conditions. I remember twenty-five or thirty years ago somebody asked me the question, "What is the spleen for?" When I am on this platform I feel as though I was ~~am~~ in the witness box and have to tell the truth and nothing but the truth and tell the whole truth so far as I know it so I was compelled to confess that I did not know and there didn't

anybody know except to make business for doctors by getting big and making trouble. A lot of things have been found out since that time and most interesting things about the spleen. One of the first things was that the spleen is a cemetery. You know we are dying all the time. Eight million blood cells die every second of our lives. Eight million corpses or blood cells go floating down the scarlet stream of life in our arteries and veins. What becomes of all those dead cells? Think of how many they would make in twenty-four hours, the number of these little cells that die. There are something like twenty thousand million million of these cells in our body. The life of a red cell is about six weeks. What becomes of all those dead cells? The spleen takes care of them. When the stream of blood comes around to the spleen there are some great large scavenger cells there whose business it is to take care of these dead and dying cells. They seize them, swallow them, and actually digest them and pass the constituents of the cell along to be used over again. The potash of the cell is used for one thing and the coloring matter of the cell for another thing. That is the way the hair becomes to be tinted because the coloring matter of the red cells is used to tint the hair with and it is also used for photographic purposes in the eye. It colors the black curtain of the eye on which the pictures are made. As soon as the picture is made it has to be rubbed out and then it has to have some more pigment and that pigment comes from these dead cells. The spleen helps about that. In more recent times it has been found that the spleen does something else that is wonderfully interesting and that is that the spleen manufactures antibodies, substances to protect us against disease. When the spleen is active and healthy it is all the time sending out into the blood substances which oppose the poisons which are made by germs/which help to protect the body against the attack of germs but when the spleen becomes enlarged and diseased, then it may become a menace because it ceases to be valuable and useful in the making of these antibodies, ferments or

enzymes or protective substances, and at the same time, because of its enormous size and the enormous increase of these scavenger cells, it becomes a kind of cyclops and when the blood comes through there it does not wait for the cells to die but lays hold of them and eats them up as they come along and so rapidly that we do not have enough to keep ourselves going. The blood becomes diminished and the result is we get anemic. That is the condition when one has splenic anemia so it is a good thing to get rid of that kind of spleen, you see. It is like a friend who has become an enemy and is a traitor in the camp and needs to be cast out of the house. Fortunately, this operation can be done very safely. It is a great deal safer to get rid of it than it is to keep it. In fact, to keep one of these enlarged spleens in splenic anemia means almost certain death whereas to get rid of it is a quick way to recovery.

Q. What percentage of red blood cells should one have to feel well and be well?

A. One hundred per cent. We need to be one hundred per cent. well all the time. We cannot afford to be below par in health any more than we can afford to be below par in our business. If a man finds that the stock of business is 150 today and tomorrow 125, the next day 100, and later down to 90 and by and by down to 75, and then 50, he will say things are going very bad, going to pieces, and pretty soon he will be bankrupted. It is the most difficult thing in the world to make people understand that the same principle applies to human beings. We examine a person's blood and find it 75%. That means he is 75% of par. He has only 75% of his normal power to resist disease. He is 25% dead, if you please, and he does not appreciate the fact. He does not see why he is not all right. He says he feels all right, doesn't suffer any pain anywhere. He says to the doctor, "Don't you think I will be all right in a week or two?" If he can only get some doctor to say he will be all right, then he is perfectly content, he

knows he will be all right whereas as a matter of fact he is simply going down from a low level to a lower level and by and by he will get so low he can't get up. I have not been so happy in ten years as I was the other day when I got a letter from a man away out in Arkansas who, ten years ago, came here when I was just starting for Europe and I met him in the Lobby as he was brought in on a stretcher. I thought he was dead to tell the truth about it. His eyes were closed. He looked like a dead man. I found he was so feeble he could not raise his head without fainting away. His friends had all said goodbye to him as he left his little home at Pine Bluff, Arkansas, and never expected to see him again. He had been a traveling man in that country for twenty years and was well known throughout that country. I never expected to see that man again, but imagine when I got back from Europe my astonishment to meet him in the lobby and he stepped up and said, "Doctor, you don't know me, do you? You never expected to see me again, I am sure." This man's blood instead of being one hundred had been reduced to fourteen per cent. of what he ought to have. He had pernicious anemia not splenic anemia but anemia due to poisons formed in the intestines and these poisons got into the blood and dissolved the blood cells and actually destroyed the blood cells by dissolving them just as acid would dissolve chalk, in just the same way. I had a letter from him the other day. He said, "I weigh 180 pounds. My skin is as pink and healthy as a sixteen year old girl's and I feel as fine as anybody ever ought to feel." Every year this gentleman comes here just to show us how well he is. He spends his summer vacation here every summer and comes up to show us how fine his health is and how he is enjoying life and he owes it all to one thing. He has got a good wife that knows how to make him mind and behave himself and follow his prescription. He doesn't deserve any credit and the Sanitarium doesn't deserve any credit. His wife was here and she stood right over him and made him obey the law. He said, "If it hadn't been for my wife I am sure I would have been dead long ago but she watches me as a cat watches a mouse

and won't allow me to deviate in the smallest particular." The thing that made him better, that brought his blood up on his first visit here to 65 and the next time we got his blood up to 85 and the next time it was 92 and now it is 100 and he keeps his blood up to 100 all the while because his wife sees that he follows his prescription and stays right by the rules. He has not tasted flesh since he was here, not once. He found it was not good for him. He has been living right up to every rule ^{laid} ~~layed~~ down for him and he is well paid. The greatest difficulty we have is to get people to think it is worth while to be good. There is nothing in this world that pays so well as to be good. We preach a good deal about being good to other folks and to the Lord but we do not have enough instruction about being good to ourselves and there is anything that pays any better.

Q. What causes the stomach not to make acids and what will cure it?

A. When you have a stomach that does not make any acid it is simply a worn out stomach. A normal stomach on the inside looks rosy and there are so many glands in the mucous membrane that it lies up in the folds and ridges. There are such great masses of these secreting glands that make pepsin and hydrochloric acid and the walls are thick. It is just as it is with the skin when the skin is healthy. It is thick like a pig's skin or the skin of a healthy dog. Must try some day to pick up the skin of such an animal and see that it has a good thick skin. Try your own and see. That is the condition of the mucous lining of the stomach. When it is full of secreting glands and blood vessels it is alive, in other words. If you should see the inside of the stomach of a person whose stomach does not make any hydrochloric acid, instead of the condition I have described it is smooth and a very thin ^{little} velvet-like covering that has very few glands in it and very few blood vessels in it. In other words, it is

a degenerated and atrophic mucous membrane. That is the situation with a mucous membrane that does not make acid and that is the reason why such a case cannot be helped much so far as the making of acid is concerned because the glands are gone. Such a person is like a person who has lost a leg. The leg is gone and perhaps the man can manage to get along with a wooden leg or a peg leg but he never will have a flesh and blood leg again. It is gone. The same is true of the person who has chronic adylia. The cause of this condition is over-work. If we could follow the case back far enough we should find that person used to suffer from acid stomach, heart burn, eructations of gas, perhaps pain an hour or two after eating. These difficulties were a daily experience. Then the stomach was making too much acid. For years and years the stomach made too much acid and by and by the gastric glands were worn out by over-work, wasted away and became degenerated because of the excessive work required of them. That is the reason why those cases are incurable but something can be done even with those cases. The man whose stomach does not make any hydrochloric acid needs to be taught how to live properly. As a matter of fact, it is possible to live without a stomach. A lady went home from here the other day as happy as anybody who ever left the institution, I am sure, with rosy cheeks and looking fine and yet when she came here she had a great ugly sore that occupied about two-thirds of the entire stomach. It was necessary to cut that all out so there was only a little piece of stomach left and it was necessary to sew the stomach onto a little slit in the intestines but she is getting on perfectly well. Her stomach is not doing a thing. The food passes along into the small intestine and is digested and she has to be very careful about her diet. She cannot eat beefsteak because beefsteak is never thoroughly digested in the stomach. You cannot eat beefsteak unless you have a stomach because beefsteak requires stomach digestion. She can eat oatmeal because it does not

require anything of the stomach and she can take milk for the same reason. It is digested in the small intestine and oatmeal can be eaten because it is digested in the small intestine. Practically all vegetable foods are digested in the small intestine so it is only necessary for this lady to be careful not to eat meats of any sort but to eat ^{only} foods that are digested in the small intestine and that do not require any stomach work so a person whose stomach makes no hydrochloric acid is in the same situation. It has really gone out of business. It doesn't make hydrochloric acid any more and consequently we should not give it anything to do. The factory is closed, if you please, and we shouldn't send any jobs to that shop because it is out of business. The stomach then is simply a passageway through which the food passes to the small intestine below and the diet should be regulated so that it will be suited to the case. If one has 95% of red blood cells he will get along very well but if the blood cells are down to 80 or 85% he ought to make haste to bring it up because that person is like a citadel with a reduced garrison. Suppose a citadel is defended by a hundred thousand soldiers and it is reduced to fifty thousand. It has only half the proper force to defend it and it is likely to be captured if the enemy has sufficient strength that assails it. A very interesting thing about a patient who has reduced blood is the fact that he is short of breath. It is because the red cells carry the oxygen that feeds the tissues. We take the air in through our lungs but really breathe through our tissues. The oxygen is used in our tissues. It is taken to the very tips of our fingers, to the ends of our toes, to the roots of our hair. That is where we really breathe. The air passes in and out through our lungs but the actual breathing is in the tissues and the red cells carry the oxygen where it is needed. Each little individual cell breathes and each little red corpuscle carries a little load of oxygen down to that cell that is waiting, getting black in the face perhaps because

it hasn't got ^{air} enough and supplies it to this waiting cell that is likely to be asphyxiated if it does not get help pretty soon. If I remember right, the average man has about 120 square yards of red blood cells. If one has only about half as much blood as he ought to have, you see he has only 60 square yards of blood to carry the oxygen and consequently he is easily out of breath. He is short of breath all the time because he is short of oxygen carriers.

Q. What causes black circles around the eyes?

A. These dark circles around the eyes may be due to two causes. Sometimes they may occur from loss of sleep or sudden illness. It is because the large veins located about the eyes are filled with venous blood. Some people have brown circles around the eyes and these are the result of the absorption of poisons from the colon usually. Sometimes they may be caused in other ways. I remember a lady we had here as a patient some years ago with whom I couldn't find very much the matter. She felt so bad she had to have a young man come up from the office to lift her into a wheelchair every day and always insisted on having the same young man. I couldn't discover that she was suffering much from lack of appetite, in fact, the dining room complained they had to send her double trays. By and by she got so bad the young man begged to be let off because he said it broke his back. I began to look into the case closely. As I passed her one day I noticed the black circles around her eyes were getting blacker all the time. By and by she came to my office. I said, "By the way, it seems to me there is something wrong with your eyes" Let me look into it." Before she had had any time to protest I had pulled down her eyelid here and I had a little bit of eye water and put a drop of it into her eye and did it so quickly that she didn't have a chance to protest and she immediately said, "Oh, that smerts." I said, "All right, I will fix it" I dipped the napkin into a glass of water and very industriously she

and the result was that one side of her face had a great black circle around the eye and there was none at all around the other eye. I observed as she wnet out her handkerchief was working very hard on the other eye. I didn't say a word because she saw at once that I understood the situation and it was very beautiful to see those black circles fade out in the most artistic manner. They faded out in a gradual way. She had put on less ink every day than she did the day before. Strange eough I have seen quite a number of cases of that sort. I suppose the black circles in those cases were applied for psychological effect on other people.

14,998

Q. Would you advise resinol ointment for a child of two years whose face is continually very much chapped.

A. Resinol ointment is perfectly harmless. Probably something that would do just as well would be a very simple preparation without resinol. It is only necessary that the skin should be protected a little. In the first place, the skin must be kept very clean. It must be washed with a little castile soap once a day, then the greatest care must be taken to wash all the soap off with soft water, then afterwards apply a very simple little ointment composed of lanolin 2 parts, boroglyceride 1 part, cold cream 6 parts. The cold cream should be made of vasoline. This is a most excellent ointment not only for chapped face, but for chapped hands and for a peculiar fine chapping of the skin that many people suffer from in cold weather which produces burning and itching and tingling of the skin on account of the dryness of the air. This is also a very excellent remedy for that.

Q. What is your opinion of Shredded Wheat Biscuits?

A. They are just as good as wheat.

Q. Why not give us some music in the gymnasium every night?

A. I was in there the other evening and I thought we were having music and quite a number of people were catering about and it looked very much indeed like an old fashioned German ball going on in the sterilized dancing at least.

Q. Is neurasthenia a disease of the nerves or of the kidneys?

A. Neither one. Neurasthenia is a disease of neglect. People who have neurasthenia are people who have neglected their alimentary canals, allowed their sewers to get clogged and the sewer gases and poisonous filth and toxins are being absorbed into the blood, and fuddles the brain and addles the intellect, so that sometimes a neurasthenic becomes almost insane. I have seen neurasthenics that were next door to being actually insane as a result of the toxic effect of these poisons that were continually being absorbed. If you will investigate such a case, you will see the bad breath and coated tongue and other evidences of auto-intoxication, the tawny skin, dingy sclerotic eye defects which indicate a toxic state of the body. The thing to do is to get the blood clean and all these troubles will disappear. Thousands and thousands and thousands of business men are suffering from what they call neurasthenia, which they suppose to be due to overwork and it is not overwork; but it is overwork at the dinner table, if you please, - at six o'clock dinner. Overwork at one end of a cigar. Do you know what Abraham Lincoln said about that? He said, "If I had a boy who was such a fool as to smoke cigars, I would maul him to death with a squash." He would be soft-headed you know and it wouldn't take anything but a squash to kill him.

Q. Does high blood pressure produce hardening of the arteries or vice versa?

A. Hardening of the arteries causes shriveling of the arteries. As the artery becomes shortened, it gets thickened toward the center, but the artery does not get any larger so the amount of blood that can get through is much less than normal. The body, in order to get the same quantity of blood through these narrowed arteries, must relieve the pressure. The pump has to work harder and raises the pressure. The high pressure results from degeneration of the arteries. On the other hand, this high pressure against the walls of the arteries has an irritating effect upon the interior walls and causes them to get thicker and so high blood pressure makes more high blood pressure

just as fever makes more fever you see. If a man gets in debt, the more he gets in debt, the more he has to get in debt. He gets to going down hill and his credit and business get to going bad and he gets worse and worse and worse all the time and so it is a vicious struggle.

Q. Does a hyper digest proteins or carbohydrates or perhaps both?

A. A person who has hyperacidity generally appears to have more ability to digest proteins than he does to digest starches and carbohydrates, but it is only apparent. The excessive amount of acid in the stomach will interfere somewhat with the digestion of starch in the stomach but the carbohydrate digestion, the starch digestion, is done below the stomach in the small intestine, so the person who has hyperacidity does not really have impaired ability to digest the starch. The small intestine is twenty feet long and is able to digest all the starch so that it is entirely an error to suppose that a person who has hyperacidity must not eat starch. It is a very damaging error because it leads people to eat more meat, meat, meat and the more they eat, the more acid they have and the worse they get. The thing necessary in such a case is to eat more fat and eating more fat, the stomach will be persuaded to make less gastric juice and the acidity will consequently be lessened. I had a letter today from a man from whom I think I have had a letter on an average ^{of} about once a week in the last five years. I do not often reply to his letters but it relieves his mind to write me to tell me what he is doing now. He has a stomach that makes too much acid and I think he had an ulcer at the outlet of his stomach; so food is delayed too long a time in this stomach and he has had a frightful time and he has gone through the most fantastic processes. A day or two ago, he wrote me that he was living then on apples and butter. He tells me he is taking a pound of butter every day and is getting on very well indeed and is perfectly comfortable. In fact, he said he had gained eleven pounds in the last two weeks, taking a pound of butter a day. I should think he should have gained more than that. Probably next week, I shall hear from him saying he has had an awful bilious

attack and had to change his diet and now he is discovered that fasting is a proper thing; that is, ^{if} he fasts three days out of every week, he can get along very comfortably and eat about what he has smind on the other three days. It is a very bad thing for one to abuse his stomach in that sort of a way. This man's stomach is badly diseased and it makes an enormous amount of acid. He finds a pound of butter a day will stop the formation of that acid but, of course, he cannot go on eating a pound of butter a day. That is absurd. As a matter of fact, he needs a surgical operation.

Q. May a person with hyperacidity eat figs or dates?

A. Yes, in moderate quantity provided he eats a little olive oil along with them. Olive oil you know, taken in connection with figs or dates agrees with them and suits them very well.

Q. How high has the blood pressure to be to produce apoplexy?

A. No body ever gets apoplexy from high blood pressure. The arteries according to Prof. Janeway are so strong that they are able to resist fifty times the ordinary pressure. We never hear of any one with a blood pressure ^{more than} three times higher than the normal, but the healthy blood pressure will resist fifty times the ordinary pressure. The reason why the artery ruptures is not because of high blood pressure but because an artery has become weak because its walls have degenerated and have become changed from ^{ous} tough, elastic fiberaxx material to fat. It has become rotten we may say. It is like a rubber hose or an iron pipe that is being rusted and has rusted clear through the pipe so that ~~x~~ its walls are weak. That is the cause of apoplexy. If you can stop that process, you need not have any fear of apoplexy. Your arteries are strong enough today and there is no reason why they should not remain strong enough if you can arrest this process so that it won't go any farther than it has. Still one with high blood pressure must be careful not to engage in any kind of violent exercise or to do anything that will raise the blood pressure higher for it may be that your blood pressure

is just as high as your arteries will stand. For example:- a man with a blood pressure of 200 say goes out on the street here and smokes a cigar, or goes to the park or to the Post Tavern or some other place, that cigar is just as pernicious in one place as another and the nicotine is just as poisonous and will do him just as much harm no matter where he smokes it. Dr. Janeway, was the best authority in the world on blood pressure, says that a single cigar will raise the blood pressure twenty points in thirty minutes. That man's arteries may be strong enough to stand 200 but not strong enough to stand 220 you see and if he smokes a cigar and gets his blood pressure up twenty points, before it ~~is~~ has got back to normal, he smokes another cigar, he will get it up to 240 you see, and perhaps only a little while afterwards, he will get it up to 250 and so he keeps on getting his blood pressure higher and higher every day until by and by it will get to the point where the damaged arteries will no longer be able to resist the pressure.

Q. How can a fresh spring chicken do you any harm?

A. I don't know any way in the world that a spring chicken could do me any harm, but I am really afraid for some of you. Some years ago, I had a letter from a very eminent lawyer in New York City, one of the big corporation lawyers in New York City, he told this story right from this very platform, himself, to an audience of two or three hundred people. He came here and told me that he was going out west and wanted to have a little talk with me about the subject of diet and when I met him, he was a very fine angular man, very intellectual but with a skin the color of leather. He was very much emaciated and I said "let me look at your tongue". It was simply horrible and he had a terribly bad breath. The result of our chat was, he said, "Doctor, I am going to try it". He only spent 24 hours here but I persuaded him that it would be a good thing for him to reduce his protein to a low level, to cut out meats entirely, to stop smoking and drinking champagne and

to turn over a new leaf and live a simple life. He said "I will try it." At the end of three months, he wrote me, "I am another man. I am like a man who has been awakened from sleep." "Why", he said, "My capacity for work is more than doubled." He made me another visit a couple of years afterwards and he said, "Why, Doctor, I cannot work any of the young lawyers in the building I am in which is entirely occupied by lawyers. There is not one of them who can keep up with me. I am there before the rest of them in the morning. I stay after the rest of them have gone away at night. I never have found myself capable of doing so much hard work as I am able to do now though I am more than fifty years of age." For many years he was the leading man on the Board of Charities of New York State. He was one of the men who laid out and planned a large number of the great institutions of the whole state of New York. He had to supervise the building and construction so he was a man of much capacity doing twice as much work as he ever did in his life before. He was happy as a boy. About a year later than that, I had a wire from him from Denver saying, "I am going to stop at the Sanitarium on my way back from Denver" and he stopped. I saw an entirely different man. Instead of the clear skin, I had met the year before, showing marvelous improvement he had made, looking twenty years younger; and now he was thin, sallow, yellow; his eyes yellow, he looked as very miserable indeed. He said, "Doctor, I have a painful story to tell you. You know on my way to Denver to see my daughter, the last day I was in a diner ~~xx~~ of the train and looking over the bill of fare, I saw among other things 'chicken pie'." (Spring chicken pie I suppose it was). He said, "I ~~xxxxx~~ said to myself, you know I have always been very fond of chicken pie. I will only eat the crust and won't eat any of the chicken but when they brought that chicken pie, it was in a cup and it was nearly all chicken and just a little bit of crust on the top of it. I ate the crust and said, 'Why, I am not getting my money's worth. I paid 75¢ for that chicken pie and just this once, I guess it won't do any harm to eat the ~~x~~ rest of it. So," he said, "I ate that chicken. Before I got to Denver I was feeling very

16,003

uncomfortable, and by the time I got there, I was glad to get to a hotel and I sent for a doctor right away and he examined me and said, 'You have ptomaine poisoning' and he said, 'For two or three days, I had an awful time and I have been sick there for two weeks and I just got able to get here.'". I said, "Well, Judge, you see it doesn't pay to back slide, does it." "No," he said, "The way of the transgressor is hard, I know it. I will never do it again." After a day or two against my persuasion, the Judge went on. He got as far as Buffalo and he was so ill he had to get off the train. He went into a hospital there and a week later, I got a letter from him saying he was very sick but perhaps would be better in a few days and a week later I got a wire from the hospital saying, "The X Judge is dead". A post mortem examination showed an accute fatty degeneration of the liver. The poisons found in that spring chicken, which was a corpse of a dead hen, that is what it was, it was a dead hen that had been lying around for along time and was neglected to be buried but finally found a sepulcher in the stomach of this good man just because he gave way to temptation. The way of the transgressor is hard my friends, I advise you to look out for spring chickens.

A man came to my house one morning and said, "Dr. Kellogg, I see you have animals here." At that time, I was collecting all the carnivorous animals I could get to see if ~~xx~~ I could not reform them. I got all the different kinds of wild animals that live in this part of the country and I am glad to tell you that I succeeded in reforming every single one of them but an old bald-headed eagle and that old fellow was such a hard customer, I could not reform him. He was a hopeless case but all the rest including a fish-hawk I succeeded in reforming. This man came to see me. He was traveling through the country from the far west and he said, "Doctor, I have got a wolf. I thought maybe you would like to get a young curly wolf, 6 months old." I said, "Certainly I would be very glad to get him. How much do you want for him." He said, "I want \$25.00." I said, "I don't want him quite so bad as that." He said, "All right, you may have him for \$5.00." So I bought the wolf,

19

22

old idiocy, to see if I could save him from the savagery of his tribe and make a civilized wolf of him. The man said to me, "That wolf is very peculiar, he won't eat anything but fresh meat and if it has been touched by a man's hand, he won't eat it. He has always been fed by my children and he doesn't mind if children touch the beef but if a grown person touches the beef, he won't eat it." I said, "Oh well, I won't give him any meat at all." I didn't offer him anything the first day because I thought I would give him a little time to get him ~~xxxxxx~~ accustomed to his surroundings. I thought very likely his appetite might not be very good, but the second day, I marched out to the barn where I had him quartered and opened a can of protose. Some have never heard of protose perhaps. With a fork, which had not been touched with the hands, I lifted out some of the protose and offered it to him and he seized ~~xxxxxx~~ upon it with great avidity and from that time on we didn't have any trouble feeding him. It was only necessary to give him a supply of protose and he was perfectly happy because he was getting the real thing you see. The protose is the real meat. Some people think it is a substitute but it is the real thing. Beef steak is the substitute. If you read the 29th verse of the first chapter of Genesis, you will read something like this "Of every fruit tree bearing fruit and every herb bearing seed, to you they shall be for meat". That is the original meat and the beef steak is the substitute. The wolf knew that evidently and he got along with the protose all right, but a few months afterwards a circumstance occurred one evening that really alarmed me. There was a loud knock on my door about seven or eight o'clock in the evening. I said, "Come in." In came a man looking rather serious. "\$3.75 if you please, Sir." I said, "Do I owe you that?" "Yes Sir." I said, "What for?" "Your wolf has eaten up four of my hens." I said, "How is that?" He said, "All I know about it is that your wolf came down to my chicken coop and ate four of my hens." About the same time a couple of boys appeared bringing the wolf home. He wasn't feeling very well and three hours later the wolf was dead. You see what happened to

another backslider.

Q. If the persistent use of a bulky laxative diet does not relieve constipation, what is the best way of dealing with it?

A. In many cases bran and Paraffin Oil or agar-agar and Paraffin Oil are really essential. There are some cases in which an operation is absolutely necessary. Every case of constipation is curable, every case. If the case cannot be cured by regulation of the diet, then it is because there is a mechanical obstruction and it is then necessary that the case should be investigated. Every case of chronic constipation ought to be investigated and the cause should be located because this is too important a matter to neglect. The stomach is the kitchen of the body where the food is prepared for the more elaborate processes of digestion which take place in the small intestine. The small intestine is the dining room of the body. There are six quarts of liquid nutritive material absorbed from the small intestine every twenty-four hours. There is practically no absorption in the stomach, every little in the colon, only about six or eight ounces, but five or six or seven quarts are absorbed in the small intestine, the feeding department of the body, if you please. The colon is the sewer. Constipation in nine cases out of ten is due to incompetency of the ileocecal valve. The stomach empties in about four hours, the small intestine in about four hours more. The large intestine ought to be emptied in about four hours more in the normal person. Normally the bowel acts after each meal. Food is the natural laxative and when taken into the stomach it sets up a peristaltic wave which travels all the way down and when when food material which is taken at the previous meal has reached the proper point in the alimentary canal, then this impulse which comes down from the stomach when a meal is taken will cause it to be discharged from the body. The natural rhythm is four hours in the stomach, four hours more in the small intestine and four hours

v-2

more will bring it to this part of the colon which then will be ready to be emptied at the next meal. Then when food is taken at the next meal into the stomach the effect will be to start a wave going all the way down. If you shake a rope the waves will travel from one end to the other. That is what happens when you begin to chew. The simple act of chewing will set up peristaltic movements which will travel all the way down the intestines and if the intestine has been properly trained, educated and treated, the result will be discharge of whatever may be deposited at the lower end here. The lower part of the cecum is necessarily loose because it contracts to lift the food up into the transverse colon. The transverse colon has slow snake-like movements. The colon is attached to the body at the hepatic and splenic flexures. The food residues are stored up in one part of the colon till it gets full and the next meal causes ~~it~~ a wave to come down which causes it to be discharged. In chronic constipation in nine cases out of ten the trouble is in the last part of the colon. As it gradually fills it rises up the normal position and it discharges its contents. In chronic constipation from neglect of the call of Nature the food residues remain so long that inflammation and infection occur, colitis results, the colon becomes diseased, and when it falls down in this way it becomes adherent and sticks fast here so that it cannot rise and because it cannot rise it then becomes a permanent obstruction. Material comes down here and cannot pass on so it banks up all the way and the whole colon becomes filled and distended with residues which lie about day after day, sometimes three or four or five or six or seven or eight days because of the absorption. In ordinary cases even when there is obstruction the difficulty may be overcome by sufficiently free use of bulky material and Paraffin. Paraffin is a lubricant and the bulky material stretches the bowel so that the material can slip through. In nine cases out of

ten this difficulty can be overcome without operation but in the tenth case the adhesions must be broken up and the colon attached to the omentum so that it is held up in position to prevent its prolapse so every case of constipation can be cured but not by diet alone.

Q. What must one do to keep down the blood pressure?

A. Just live a natural life. Take care to keep the bowels moving freely three times a day. Do not smoke. Do not drink tea or coffee. Do not eat beefsteak and live the simple life in every way possible and you will keep your blood pressure down. It is a common thing to have people come here with a blood pressure of 200 and get it down to normal. If the blood pressure has not been up too long a time it can be gotten down and kept down. A very distinguished gentleman came here some years ago. My assistant reported to me that the Surgeon-General of the United States Army wanted to see me. I said, "I am surprised at that. I guess he must be an impostor." He replied, "Well, he says he has been the Surgeon-General of the Army and just retired a short time ago. I said, "I guess he is making an excuse to see me but I will see him." I soon met a very distinguished gentleman, a man evidently of quality, and he gave me his card and sure enough he was Surgeon-General of the Army, had retired a short time before and he said, "Dr. Kellogg, I have come here to see you to get you to tell me how to live. I just found out day before yesterday that my blood pressure was 210 and I do not like the looks of it because I know that means I have not got a great length of time to live and I just retired from professional life a little while ago and my wife and I were planning to spend ten or twelve days having a good time and it is a great shock to me to find I have got this high blood pressure and I want you to tell me how to live so I can get it down and keep it down and have a few years to travel about and enjoy life in" so we talked it over. I said, "You smoke, I suppose." "Oh, yes, all army men smoke. There is no harm in that I suppose?" I said, "Now, do you know what cigars do to blood pressure?" "Why, no, cigars don't disturb blood

pressure, do they?" Dr. Janeway says a single cigar will raise the blood pressure 20 points in thirty minutes. "Is that so?" he said. "I didn't know that." "How about Havana cigars? I smoke the very best cigars, you know. They cost me forty cents apiece and I suppose they aren't so bad." I said, "All the difference is this. The cheapest cigars have a great deal of nicotine and the high priced cigars have less nicotine and more prussic acid?" "Which would you rather take, Doctor, nicotine or prussic acid?" Both have the same effect upon the blood pressure. He said, "Now, Doctor, I suppose I should smoke about one-fourth of a cigar every day. What would you think about that?" "Well, it would raise the blood pressure just about that much, that will be all." "Well, I guess I will have to drop them out then" so we discussed tea, coffee and beefsteak and found out they all had the effect to raise blood pressure. "Well, Doctor," he said, "I will try it a little while. I will try to get along without these things." After three or four days he came back and wanted to see me and he threw himself into a chair and said, "Doctor, this is breathlessly interesting here. My blood pressure has come down thirty points in four days. Just think of it. Sure enough his blood pressure was 180 instead of 210. "Now, Doctor", he said, just write it all out. Put it all down on paper so I can see it and I will live right up to the letter of it" so I furnished the Surgeon-General of the Army with a prescription of how to live to keep his blood pressure down ~~for~~ and have a good time and several weeks later I heard from him that he was happy and well and enjoying himself immensely. It pays to be good. The Surgeon-General had been spending all his lifetime in learning the art of ~~kill~~ ^{keeping} people. I have spent my life in learning the art of keeping people alive. He didn't know anything about keeping people alive, even in his own case. He had been giving his attention to the other things. It is worth a great deal more to know how to keep people alive than to know how to kill them.

Q. Can sugar diabetes be cured?

A. Yes. Not every case is curable but now and then a case is cured and every case can be controlled, practically every case. A little girl was in my office last night with plump, rosy cheeks, a fourteen year old girl, who was brought here by her mother six or eight weeks ago suffering so badly from this terrible disease that really I was not quite certain whether we were going to help her or not. Within a week the sugar entirely disappeared and has not appeared since and she appears really to be getting well. We have about thirty persons in the institution under treatment now suffering from this disease and I do not know of ^{but} one or two of them who are showing the slightest bit of sugar. The sugar disappears within four or five days after treatment is begun and it does not reappear if the patient is ready to co-operate with the doctor and do just the things they are asked to do.

Q. What fruits do you consider best for one troubled with hyperacidity?

A. Fruits that contain very little acid such as the banana which is one of the very best or the pear and sweet apples.

Q. I understood Dr. Riley to say that we ought not to eat the comb with the honey as it is indigestible.

A. All wax is indigestible. However, we need a certain amount of indigestible material so I am not sure that it does any harm to swallow a little of it though honey should be taken in small quantity. It is not the best sweet.

Q. Can we live without the gall-bladder?

A. The gall-bladder is not at all essential. The elephant, the mouse and the donkey haven't any gall-bladder. The rat and mule, the hippopotamus and man have gall-bladders. I have a nice collection of gall-bladders in my museum across the road here and the former owners of these

gall-bladders, I am glad to say, are all alive and well.

Q. How long do you think it will take the soldiers to capture Villa?

A. I am not a military expert. It is my honest opinion that they never will catch him. I have ridden about Mexico on horse-back and through the very country where Villa is hiding and carrying on his exploits and it seems to me there are a thousand chances to one that he never will be caught in that region.

Q. What is your opinion of the use of typhoid serum?

A. My opinion is that it will protect a person against typhoid and the slight illness one suffers from the use of the serum is nothing at all compared with the great risk and danger of having typhoid fever. Since this method of protection against typhoid has been adopted the fever has almost entirely disappeared from the army where it used to carry off a good many soldiers every year.

16,009

Q. What causes goitre?

A. Dr. Caylord thinks it is due to a vegetable parasite found in water.

Q. Does bronchitis cause the muscles of the neck to enlarge?

A. No but there may be enlargement of the neck in connection with this disease.

Q. What is the cause of bronchitis?

A. It is generally due to toxins absorbed from the colon. It may be due to the condition of the heart. It may be due to infection of the bronchial tubes.

Q. Kindly point out some of the harmful effects of putting one's head under cover and sleeping all night in this way.

A. One of the harmful effects is that you might not wake up

in the morning. That is the most unpleasant effect I know of. One might smother to death, of course, breathing bad air that has been breathed before and it is about the worst thing one can do. For instance, suppose this pitcher was empty, had no water in it, and suppose I should put a burning candle in the bottom of it. It would burn all right. Suppose I should take a glass tube and breathe air out of my lungs into the bottom of that pitcher. A short time afterwards the candle would go out. Air that has been breathed puts out a candle and in the same way it will put out the human life.

Q. If air which has been swallowed and not gas generated in the stomach makes disturbance, why does not the stomach expel this air very soon after a meal?

A. It does. It passes it downward into the small intestine where the oxygen at least is absorbed.

Q. When the gastric analysis shows no trace of hydrochloric acid, does that indicate that the glands of the stomach are atrophied?

A. A single examination would not be sufficient to prove that but if after repeated examinations no acid can be obtained, examinations made in different ways, that would be evidence that no acid was being formed and the glands had degenerated.

Q. Will an infected gall-bladder or bowel trouble render a person neurasthenic?

A. Yes, indeed, a very common cause of neurasthenia and indigestion. Many troubles attributed to the stomach are really due to the gall-bladder.

Q. Is diabetes a blood or liver disease or disease of the kidneys?

A. It is probably due to a diseased condition of the pancreas.

Q. May one have arteriosclerosis and not have high blood pressure. O, yes, that is frequently the case. One may have local arteriosclerosis without having high blood pressure.

Q. What is the normal blood pressure for a man sixty years of age?

A. 110 up to 120. The blood pressure of a man sixty years of age should be the same as for a man twenty years of age for a man has no business to be old at sixty. If a man at sixty had a blood pressure of 150, 160, 170 or 180, he is an old man no matter whether he is sixty, forty or thirty-five. He is an old man because a man is as old as his arteries.

Q. How much milk should be used a day by a person who is working and is on a milk diet?

A. It takes four or five quarts of milk to make a day's ration. An ounce of milk has about twenty-one calories of food value so you can see about how many ounces it would take daily to make 2,000 calories, for example.

Q. What causes osteoarthritis?

A. It is probably due to infection.

Q. Is there any cure?

A. The disease can be arrested but, of course, the injuries cannot always be removed.

Q. Are prunes particularly nutritious?

A. They are among the most nutritious. They contain about ten or twelve per cent. of nutrient material.

Q. What is angina pectoris?

A. It is arteriosclerosis or at least a diseased condition of the arteries of the heart.

Q. Is it curable?

A. It can be arrested. There is a form of angina pectoris

known as pseudo angina pectoris which is due to a reflex disturbance from the stomach which is very readily curable.

Q. Can one have cancer of the stomach and be increasing in weight?

A. One of the symptoms of cancer of the stomach is a loss in weight.

I have reached the very bottom of the box.

I thank you for your attention.

END.

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QUESTION BOX LECTURE AT THE SANITARIUM PARLOR, BATTLE CREEK, MICHIGAN,

THURSDAY, MARCH 30, 1916, at

8:00 P. M. by

J. H. KELLOGG, M. D.

The outdoor gymnasium is really one of the features of the institution during the summer season. Many people, I believe, think they get as much profit from the outdoor gymnasium where they can get close to mother earth, get the skin tanned like an Indian as from any other part of the institution. Sea bathing isn't anything like half as beneficial as it would be if an outdoor gymnasium were arranged in connection with the bathing. One of the difficulties of wearing clothing is that it imposes an artificial skin over the natural skin and deprives the natural skin of the advantages which it requires for maintaining health. The skin is a wonderful structure. It contains miles and miles and miles of ducts and millions and millions of glands. It is a breathing organ. The skin is a better breathing organ than the lungs. That is really a very surprising fact but it is. The lungs have about 2,000 square feet, one hundred times as large a surface as the skin has which is about twenty square feet. The skin does one-fiftieth part of the breathing although it has only one one-hundredth as great an area as the lungs. This indicates that one square inch of skin surface is twice as efficient in breathing as an equal area of lung surface so you see the skin is a very important organ. It is capable of containing two-thirds of the blood of the body. When the skin is well filled with blood, after a warm bath, for example, it may contain two-thirds of all the blood in the body. Then, of course, when the skin is empty of this large amount of blood, when the skin is anemic,

the blood vessels are contracted. When one is hidebound, for example, as we say of a horse when the skin sticks to his back, the blood which ought to be in the skin is in the interior distending the liver, the stomach and the portal circulation, the spleen, the brain and all these organs are congested and the consequence is the circulation of the blood is slowed and is sluggish. Such persons generally have weak and flabby muscles. I know a doctor who said he could make a complete diagnosis of a patient's case by putting the hand upon the abdomen in the dark. If he found a soft, flabby abdomen, he knew from that fact alone that the whole body was in a state of disorder. Unless the abdomen is filled with blood, and that is always the case when the abdominal muscles are relaxed, feeble and flaccid, everything goes wrong. Digestion is disturbed, absorption of food is slowed, the bowels are inactive, the liver is congested; it does not do its work properly. These great vital organs are all insufficient and as a result the blood is imperfectly aerated, the whole body is starving and the whole body is in a state of partial suffocation, asphyxiation. Every organ, every cell, every tissue is asphyxiated, more or less poisoned, and suffering from the lack of the vital elements of food and air so it is of the greatest importance that we keep our muscles and skins in good condition. Someone asked me, "Why do you wear white clothes?" "Because I discovered that in the summer time I felt much better and lighter than in dark clothing and I found it very disagreeable to put off the white clothes of summer and put on the black clothes of winter. I felt depressed so I wore white clothes a little later and later and later every fall till by and by I found I was going through the winter without making any change and I discovered that white clothes are warmer than black clothes. I wear slightly heavier underwear in the winter time but by wearing porous clothing the air is allowed to circulate about and the sunshine to filter through so that our skins are exposed to the light. In this way we get the benefit of the wonderful tonic influence of light. One of

the methods of treatment we employ here at the Sanitarium is artificial sunshine. It is known as the quartz light or violet ray which is really more powerful than the sunlight itself. If one's skin is exposed at the distance of a foot or two from the quartz light the skin will become thoroughly sunburned in four or five minutes so the outdoor gymnasium we find to be a most excellent thing for the summer but we continue it in winter by means of the arc light and the actinic ray.

Q. What is the cause of sick headache?

A. Poisons. It is due to inactive bowels and wild bacteria growing in the intestine producing poisons. A person who has sick headaches is intoxicated just as much as the man who is reeling along the sidewalk out of a saloon. A man under the influence of whiskey is no more intoxicated than one who has sick headache. The cure for the sick headache is to get the blood clean and keep it clean and with the blood clean the alimentary canal must be clean. We must have the whole interior of the body clean. We take a great deal of pains to have our hands clean, to keep our skins clean and our faces and our clothing and when we sit down at the table we are very particular about having clean plates, clean saucers, clean knives and forks and spoons and napkins. All must be very clean. Yet, just think of the conditions we tolerate in our interiors. We are so very particular to be clean on the outside but the inside, just think of it. Some people are so unclean on the inside that they actually smell bad. You get the breath of one of these persons with such a horrible interior and it smells very much like a sewer. It is sewer gas, as a matter of fact, that has not yet gotten into the sewer but ought to be there. It is being carried around. Actually, people think that they are ^{perfectly} immaculate, wholesome sort of folks while they are carrying around this sort of filth for three or four days and their breath just loaded with these poisons coming up from the colon. By the way I met Mr. Horace Fletcher the other day in New York. While we were sitting at the

table eating a gentleman came along from the other end of the dining room and he was eating a regular Sanitarium dinner at the Lotus Club. There was bran biscuit, protose, and half a dozen other things I recognized as having seen before and I was telling Mr. Fletcher about various things and found by the way that he was eating a Laxa Biscuit. I said, "Mr. Fletcher, do you eat Laxa Biscuit?" "Oh, yes," he said, "I have adopted your theories so I have changed my mind about that." I was very glad to see that Mr. Fletcher had reformed. Every little while somebody is saying to me, "Do you believe in Fletcherism" and I have had to say, well, not exactly. I believe in chewing the food but I do not believe in allowing the residues of food that have not been used to be lying around in one's interior for days and days and days, a week or two, as sometimes happens. Mr. Fletcher, in some of his books, intimates that one of the very good results of Fletcherism is a very great economy of nutrition, that the bowels do not need to move more than two or three times a week because all the nutritive material is taken up. Mr. Fletcher had not discovered that when the bowels move it is not simply for getting rid of the residues of food but for the purpose of getting rid of a lot of other poisonous matters as well. The residues of food constitute only a very small part of the material discharged from the body through the bowels. One-fourth of all the dried weight discharged from the bowel is made up of germs. These germs are so small it would take 20,000 of them arranged in a row to make a line an inch long and a large proportion of the entire material that leaves the body through the bowels consists of these germs. Ninety-nine per cent. of them are dead, fortunately, but it is unfortunate too because after these germs die the poisons which are contained in the body are absorbed and are a source of injury and damage to the body. It is not simply poisons that the germ produces and excretes during its life, but after its death the antitoxins retained in the body are also set free and become a source of poisoning to the body. Then there is about another

quarter that consists of the residues of food and the balance is made up of excretory substances for the colon and the small intestine, in fact the whole alimentary canal, even the stomach, perform the function of excretion. We think of these organs only as digestive organs but that is an error. The skin is a breathing organ and at the same time an excreting organ. It excretes and it absorbs oxygen so the skin is one of the particular sources of taking in material. It takes in a certain kind of food supply, so to speak. The stomach digests and absorbs a very small amount of food but it also excretes into the interior certain poisons from the blood and the duodenum. The whole of the alimentary canal, but especially the large intestine, serves the purpose of an outlet for certain poisons, particularly metallic poisons, the lime, for instance, the waste lime that passes out through the colon and the waste iron that has been used and is no longer of any use passes out through the colon and the same thing is true of all the metal substances that are excreted from the body and there are other poisons that are excreted through this channel. Consequently, we should remember that the function of the bowels is to discharge poisons from the bowel. There is another very important class of poisons discharged from the colon and that is the poisons that find their way out of the body through the liver. The liver is one of the most important of all the excretory organs of the body. It is the biggest gland in the body weighing four and a half pounds. It lies in the right side of the body up under the ribs. The liver is half an inch thicker after dinner than before. After a Christmas dinner, for example, it may be an inch thicker. The liver prepares and pours into the intestine the most poisonous of all the excretions of the body, the bile. The bile is six times as poisonous as urine. It is the function of the liver to pour this bile out into the intestine and the function of the intestine to carry the bile off.

If the bowels do not move regularly all these poisons are left to accumulate and to be reabsorbed and that is the reason why one has headache and his bowels do not move properly while one is tired while his bowels do not move. Thousands of people think they are tired because they are working too hard when the only reason they are tired is because their bowels have not moved. It is a dishonorable thing. They have not paid attention to the animal needs of their bodies. They have not taken care of themselves as well as they would take care of a horse or an old cat or a squirrel or a canary bird or a poodle dog. Thousands of people do not give themselves half as good care as they do their poodle dogs. They use some sense about feeding a poodle dog or a canary bird but when it comes to feeding themselves any old thing that comes along is good enough. I asked a Chicago man sometime ago what he ate and he said, "Oh, I rush into a restaurant and I say to the waiter, 'Bring me something quick' and if it is beefsteak, I eat it. If it is yellow dog I eat that, anything that comes along." Aman at Los Angeles actually did eat a yellow dog. At any rate, he bit something hard in a sausage he was eating and he looked at it and found that it was a number and on looking sharply he discovered that it was a dog license. He went to the chief of police and found that a dog had been lost that had that particular license number so he went to the house of the lady who had lost this dog and found that it was her pet poodle dog and that he had actually eaten a part of it in his restaurant dinner. Bologna sausage, you know, is made of everything but pig.

Q. Somebody wants me to tell when the war will be over.

A. I feel just as you do about it, that it is the worst calamity that ever fell upon the world and it will take five hundred years to recover from it. There is no question about that. The damage that is being done by this war is the worst damage that was ever done by

any war or any pestilence that every occurred in the whole history of the world because the finest men of Europe are being marched up there, slaughtered, and blown to pieces by the thousands and the tens of thousands. Suppose there is a fine young man with a splendid body and a splendid head and intellect. One hundred years from now or five hundred years from now, at least, that young man ought to have five ^{thousand} descendent, more than that. He ought to have twenty thousand descendent. One hundred years from now he ought to be represented in the world by four or five hundred splendid men and women. He is killed. That whole line that ought to follow him is nipped in the bud so the very best blood of Europe is being destroyed and those that are left, the cripples and the imbeciles and the inefficient that are left at home are the ones that are going to produce the coming races. France and Germany and England and Russia are going to be represented in the future by a mediocre class of people because they are killing off their very best. Dr. David Starr Jordan has made a careful study of this subject and has shown that the relation of war to eugenics or to race degeneracy in a most conclusive manner. He has proven beyond any possibility of controversy that war is one of the greatest of all the causes of race degeneracy through the killing off of the finest blood of the nation. That is the greatest evil that is coming as seen in the future. The world will never recover from this war.

Q. What is the probable effect upon the health and life of a person who has had one kidney removed?

A. The probable effect will be to prolong his life. I had a letter from a good friend of mine the other day, Dr. Stephen Smith of New York City, who wrote me that he was still enjoying comfortable health as he had done all his life. He is ninety-four years old and has never been well in his life. He has always been an invalid. When he was a boy they thought he would never grow up. They were very sure he had consumption of

the bowels. He had a chronic diarrhea and had to live on bread and milk and that is what saved his life. He has lived all his life on bread and milk, on a very simple dietary, and is just as well now as he has been any time in the last fifty years. He travels all through the State of New York visiting the state institutions. He is a member of the State Board of Charities and has been on this Board for forty years and a few years ago was elected to another term of eight years. They do not expect him ever to die. He is one of the most active members on the Board

~~They do not expect him ever to die. He is one of the most active members on the Board.~~ A member of every one of the standing committees on the State Board of Charities, and is a member of several special committees. The Good Health Publishing Company have been getting together a thousand of the most important questions that have been answered here in the last forty years, and are publishing the answers in three little volumes, which will make about one thousand pages. The title of the book will perhaps be "A thousand and one health questions ^{briefly} ~~previously~~ answered".

Q. What are the causes which produce migraine poisoning? Is there any difference in any respect between the migraine and sick headache?

A. No. They are different names for the same thing.

Q. What will remove freckles and sunburn with the least injury to the skin?

A. The best way to remove sunburn is to go into the shade and stay there.

In England it is noticed that the coal miners who live away down under ground all the time have faces so pale they are almost milk white when the black coal dust is washed off.

I was in Russia some years ago. I went to Petrograd to study the works of the famous Physiologist, Professor Pawlow, and I was struck by the fact that everybody I met on the street was pale. I had been under the impression that the Russians had a dark complexion, but I never saw so many pale people anywhere else. Even the coachmen who drove the coaches about were almost actually as white as a sheet. I did not see anybody on the streets that had any roses on their cheeks or any color. They had been going through a long winter. Petrograd is far north, and the long winter with short days and the cloudy weather did not furnish enough

sunshine to keep color in their skins.

Q. Why does excessive blood pressure cause severe pains in the back of the head in some cases and not in others?

A. A person who has severe pain in the back of the head and has high blood pressure at the same time does not have the pain because of the high blood pressure, but the two are probably both produced by the same thing. The person is suffering from ^{chronic} choleric intestinal toxemia and of the poisons which produce the pain in the back of the neck also produce the high blood pressure..

Q. Do cancers come from scars caused by gastric ulcers?

A. ^{Yes,} ~~I say~~ that is just the way cancers come. Yesterday, just as I was about getting through my work in the operating room I got a telephone message that a woman from the town had been brought in who was suffering terrible pain and required attention right away, so we performed an operation. She had suffered for a year or two, more or less pain in her stomach, and it recently had become so severe that life was unendurable. She vomited all the time and had most terrific pain. She had had a cancer of the stomach for several years, but finally it had begun to penetrate and cut through the wall of the stomach and set up inflammation until the parts were all bound together. The cancer had penetrated far up into the liver, eating a hole in it, and it had become ulcerous so that the cancer was appearing in different parts of the liver, and the case was absolutely hopeless. It is believed, by many eminent surgeons, that cancer of the stomach usually begins in the scar of an ulcer. Would you say then that everybody who had scars on the stomach should have an operation performed? No, not by any means. But I would say that everybody who has had an ulcer of the stomach should adopt a dietary that will, as far as possible insure him against cancer.

There appeared, the other day, in the British Journal of Surgery, a very interesting article by a doctor who had made ^{the} a discovery that by feeding an animal on pork, he can produce in that animal, cells which have very much the appearance of cancer cells. I should not pay any attention to a publication of this sort if it

were not for the fact that it appeared in the British Journal of **Surgery**, one of the most responsible and authoratative medical journals in the world. This writer gives details of experiments in feeding animals upon pork and upon large quantities of red meats. He found that pork and red meats would produce cells which had the appearance of cancer cells. There has been, for a long time, a strong suspicion that meat eating is the cause of cancer. There is ground for that suspicion. The statistical study of cancer shows that it is a disease which prevails among meat eating races of men and animals. Dogs are not free from cancer. In London there is a hospital where sick animals are taken for treatment and operation, if necessary. Doctor Victor Horsley, one of the great London Surgeons, said to me some years ago, "Doctor, I have got to hurry off after dinner, because I have got to go down to my animal hospital." In the forenoon he operated upon human beings, and he is one of the most skilled surgeons in the world, and in the afternoon he went down to operate on these poor animals to do anything he could for their relief. The statistics of this hospital show that one out of seven of all the dogs that came into that hospital was suffering from cancer, and one out of eight of all the cats was suffering from cancer. Further statistics show that one out of twelve of all the people brought into the hospital for treatment was suffering from cancer.

In Berlin there is a large hospital where they treat not only cats and dogs but horses, cows, sheep, and all kinds of animals and careful statistics have been collected with reference to the diseases found among these animals by which it was found there was only one cancer in fifty thousand sheep so that cancer is nearly ten thousand times as frequent in dogs as it is in sheep, you see. Sheep do not eat meat. Another interesting observation was made and that is that no case is on record in which cancer has been found in an ape, a gorilla, a chimpanzee or orangutan. There are a great number of apes in the zoological garden of London and in various other collections of animals in Berlin, in the Bronx Park collection in New York and various other parts of the world. No case is on record of cancer found in any of these animals. There was just one case in which there was a tumor which slightly resembled cancer but that was the nearest they have come to anything of that sort. The same thing is true of horses, cows, and goats. The hog, the filthy creature that he is, is very little subject to cancer. Why? Because a hog is not allowed to follow his natural scavenger instinct. So long as he is a good vegetarian he doesn't have cancer which belongs to him, you see. If a hog was turned loose in a slaughter house, for example, and made to eat up the offal, as is often the case, and such a hog was killed and sent to the butchershop and the people ate the hot, offal and all, and this is a very common practice. Such hogs are likely to have cancer. The hog is generally a vegetarian, lives upon grass and corn and does not have cancer very often. Dr. Williams of Bristol, England, who made a very careful study of this subject, found that in all Central Africa where the people are practically vegetarian and eat flesh only now and then at feasts but who live almost their entire lives on plantain, and bananas, sweet potatoes, manioc, palm cabbage and the products of their gardens, are almost absolutely free from cancer. The negroes of the coast

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who live on the flesh of animals and acquire other bad habits become very subject to cancer but the negroes of the interior are almost absolutely free from this disease. A missionary who had been ten years in Central Africa told me he saw eight or ten/^{thousand}sick people a year and he said he had never yet seen a single case of cancer. I talked with a missionary who lived for many years among the Arabs who live upon dates and wheat and he said that in twenty years there he had never seen a single case of cancer and more than that appendicitis was an extremely rare thing. Dr. Fenn, the great Chicago surgeon whom many of you still remember made a trip in his later years down the East Coast of Africa stopping at all the principal towns and going out into the interior studying the natives and he wrote a very interesting series of articles for The Journal of the American Medical Association and one of the things I noted particularly in his articles was the statement that the natives of the Eastern part of Africa are entirely free from two diseases--appendicitis and cancer--that these diseases are not known there. I have been a vegetarian fifty years myself and have not had a cancer yet and I should feel awfully ashamed to have one. I should feel as though it didn't belong to my class at all so if a person had ulcer of the stomach the important thing for him to do is to begin to live in such a way as to protect himself against cancer just as far as he possibly can. He should make his diet such that he will not be likely to have cancer. I have seen a few cases of cancer who recovered from it without any surgical operation. I met a man with a cancer in the back part of his neck. He said he had had this sore for five years. It got better and then got worse but never got entirely well. He said, "About five years ago it was a good deal worse than it is now" and I said, "I am afraid it is cancer". So I just turned^{over}/a new leaf, changed my habits entirely, stopped eating meat, went to working out of doors, sleeping out of doors, taking exercise every day, and a cold bath every morning and I began to improve and it almost

disappeared but not quite. I said, "It cannot be a cancer. If it were it would have eaten your head off by this time." He said, "I have had several doctors look at it and they told me it was a cancer" so I snipped off a little piece and sent it to the laboratory for examination and then really forgot all about it. I felt so certain it could not be cancer. About three weeks afterwards it occurred to me that I better be looking into that. I called the laboratory and found out that it was cancer; sure enough. I immediately stepped to the telephone and asked the gentleman to come right up to the operating room. I felt quite guilty that I had neglected the matter so long. As he came in I wanted to put on as brave a front as I could so I said in a laughing way, "Well, how is your cancer?" He said, "Doctor, it is all gone." I said, "You don't mean it?" "Why it is." I looked at it and sure enough it had disappeared entirely. That was a dozen years ago and it never has appeared since. I thought it could not be a cancer so I sent down to New York a portion of it to the pathologist of the Bellevue Hospital, one of the best pathologists in the United States. The professor studied it carefully and he reported that it was the most malignant kind of cancer there was and there was no doubt about it yet that man got well simply by changing his habits and he is well today. Not another thing was done. There are a number of cases on record of the spontaneous cure of cancer so we know it is possible for the body, even when it has become infected with cancer, to make such a successful fight against this disease as not only to resist its advances but actually to radicate it, to effect a cure. Now if that is true it is evidently true that it is possible for the body to build up such a wall of resistance against cancer that it cannot be attacked, don't you see. If the body can build itself up so as to expel the invader who has once got into the citadel, it must be a great deal easier to keep the invader out than to cast him out after he has gotten in so it must be that by the right sort of living, by living biological-ly, by avoiding all possible causes of cancer, we may be protected against it.

15

I think it is very important to know this because cancer is gaining ground rapidly in every civilized country. At the present time every seventh woman over forty years of age who dies of cancer, dies of cancer and every twelfth man who dies over forty years, dies of cancer. In this country alone 84,000 people died last year of cancer and for everyone that died at least five people are suffering from the disease so I may say there are practically not less than 400,000 people being eaten up by this horrible disease this very minute in this country alone. Now think about the rest of the world. Fortunately, in China, Japan and those countries, cancer is very rare because meat is so little eaten in those countries and in India. In countries where much meat is eaten the disease is advancing very rapidly indeed.

Q. . What are the symptoms of liver trouble? How can it be cured?

A. One symptom is pain up under the ribs of the right side but that is not a sure sign of liver trouble. Another sign is pain back of the liver at the last of the dorsal vertebrae and tenderness on pressure. That is quite a distinct symptom pointing toward the liver or gall-bladder. The things people charge to the liver generally the liver is not responsible for. When a person says, "Oh, I am so bilious, Doctor, give me something to help my liver" the liver has nothing at all to do with it. The trouble is that person is in a state of autointoxication. His colon is loaded with rotting, decomposing, filthy material, and he needs something to clear out the stables, if you please, that have been neglected. The fault is not with the liver. It is in a bad way only because it is enormously overworked, flooded with poisons coming in from the intestine. The thing for such a person to do is to clear the bowels out, drink plenty of water, and adopt a fruit and bran diet, and lettuce and celery for a couple or three or four days and it will effect a cure in a hurry.

Q. What form of exercise should one take who has high blood pressure?

A. A great deal of moderate exercise. Slow walking is an excellent exercise. Persons who cannot walk may take automatic exercise in which the muscles are made to act by means of electricity.

Q. Will a decaying tooth cause ear ache?

A. It might.

Q. Is it liable to make an abscess in the ear?

A. That might occur also.

Q. What kind of toothpaste do you advise?

A. I am not advance agent for any manufactured toothpaste.

In fact, I never use any myself and I don't know the names of any.

The teeth can be kept perfectly clean and in good condition with simply a toothbrush and a little cold water. I am able to keep my teeth in perfectly good condition and my mouth sweet with nothing more. In the first place do not put anything into your mouth that will make it unclean. It is a good thing to eat an apple or a little celery at the close of the meal as a means of cleaning the teeth. The chewing of something of that sort will cleanse the teeth and help to scour them off and to disinfect them. Then if one is careful not to eat anything at all that is likely to leave a putrefaction behind it, the teeth will be less likely to be damaged. Meat eating is one of the most prolific causes of teeth decay and there are two reasons why meat causes teeth decay. One is the little fibers of meat get between the teeth and rot and then cause the teeth to rot. They feed the germs which are most active in producing decay of the teeth. Meat also contains no lime. When you eat pig you only eat the soft parts. When you feed a pig some corn the lime in the corn and the grass that the pig eats goes into the bones and the fat into his lard and the protein into his muscles. The lime all goes into the bones. When you

sit down and eat that pig, you do not eat his bones but leave them behind so you do not get all of your food back again and you do not get the lime so if you want to get all the corn back you have got to take the whole hog, bones and all. That is what the lion does and if he doesn't do it he gets sick himself. The lion cubs at the London Zoo sometime ago were found to have clubbed feet and to be humpbacked and bowlegged and to have all sorts of deformities. Dr. Treves, the great London surgeon, was called in consultation and he said, "What do you feed them?" They said, "Oh, we feed them the very finest kind of meat." He said, "Well, that is what is the matter. You must give them bones" so they ground up the bone into bone meal and fed it to them and they got all over the difficulty right away. The young lions born since that time have well formed limbs because they get the lime so if you eat pig, ox or sheep you must eat the bones along with the lean meat.

Q. Is there any cure for hayfever?

A. Yes. The cure is to get vaccinated against the particular weed that is your bane. Find out if you can whether or not it is rag weed or some other weed and whatever weed it is get your doctor to vaccinate you with the pollen from that weed and you won't have hayfever.

Q. Will a person with an excessive amount of acid in the stomach ever have tuberculosis?

A. Oh, yes. He might have tuberculosis because it doesn't always begin in the stomach by any means.

Q. I have been here several months and have found the nurses a very superior class of young women and it isn't fair that they should get no wages to deprive them of what they want to eat or in any way to restrict their diet.

A. Certainly it would not be fair to starve these young ladies.

We do not want to do it. Do they look starved or emaciated? We find our nurses gain in weight, in health, and they all get along very nicely. The strike they recently had was not due to the fact that they could not get enough to eat but because they were afraid they were not going to get enough to eat and they got into a panic and got themselves tied up in a compact together to do something which, I guess, they are all very sorry that they did because the Board of Managers were to give them, and anxious to give them, all they wanted and a good deal more.

Q. How should a person with high blood pressure eat and drink?

A. Biologically. Get a little book entitled, "The Simple Life in a Nutshell" and just eat, drink, and live according to that book and that is the very best thing you can do. Cut out meat. Do not eat very much cereals. Make your diet chiefly of fruits and vegetables. Drink a good deal of water every day and that is about all there is to it. Eat laxative food so the bowels will move three or four times a day.

Q. Explain digestion, absorption, assimilation and oxidation.

A. That is quite a task. We will have a little school exercise on the subject of digestion. There are five digestible food elements, starch, albumin, fats, sugar and salt. There are five digestive organs, the mouth, the stomach, the liver, the pancreas and the intestine. There are five digestive fluids. Each of the digestive organs makes a digestive fluid. The mouth makes the saliva to digest starch. The stomach makes gastric juice to digest protein. The liver makes bile; the pancreas makes pancreatic juice, and the intestine makes intestinal juices. Each one of these has some particular kind of work to do in digesting the food. There are five digestible food elements to be acted on and digested by these five digestive fluids. The

saliva converts starch into sugar. The gastric juice digests the connective tissue or albumen of meat. It digests albumen. The bile digests fat, makes soap out of it. Soap can be absorbed and fat cannot be. Each one of these fluids digests one thing. The pancreatic juice does what all these other three do. It digests starch, albumen, and fat. The intestinal juice digests all the food elements. Every one of them are digested by the intestinal juice. That is the whole subject of digestion and you see it is very easy.

Q. After eating victuals is the strength or benefit stored in the blood or no benefit gained until it is burned up by oxidation?

A. The fat and the starch of food are converted into glycogen. The fat is stored up as fat under the skin and the starch and sugar are converted into glycogen which is a kind of animal fat and is stored up in the liver. The human liver stores up half a pound of sugar. We require every day about a pound of sugar or glycogen to keep our machines going, to keep us warm and to give us energy. Then it doles out the sugar as fuel to the body just as an automatic stoking machine furnishes the coal to the boiler of the furnace.

Q. Does constipation cause an excess of blood pressure?

A. It might. It is a frequent cause of high blood pressure by leading to autointoxication.

Q. Is distilled water as healthful for regular use as good well water or spring water?

A. It is not so palatable. That is the only objection to it. If it is aerated, however, it is all right. The benefit we get from water is not from the lime that is in it or the minerals that are in it but simply the water.

Q. What is the cause of diabetes?

A. The probable cause is disease of the pancreas.

Q. When one's heart action has become affected by high blood pressure can it be restored to its normal action again?

A. If this disturbance is not too great.

Q. Is arthritis curable?

A. Arthritis can be arrested but the effects cannot always be ordinarily removed. If the joints have become deformed through arthritis that deformity cannot always be cured. Sometimes it can be removed by a surgical operation. A lady came here three or four weeks ago who was not able to bend her arm because of arthritis in the joint. At the present time she can feed herself and can get the arm almost straight. It simply required removal of a little portion of bone which had grown out as an excrescence and interfered with the action of the joint.

Q. What is the hydrotherapeutic method of treating a cold in the head or in the chest?

A. If you get the cold by getting your feet wet, you should soak your feet in hot water. One must chase the cold out where it got in, you see. If you expose the back of your neck and get cold in that way and the back of your neck is stiff, put a fomentation on it. Get after the cold right in the place where it got in. A general hot bath, then drinking a gallon of water and living on fruit and bran, lettuce, celery, and things of that sort for a day or two is one of the very best remedies I know of.

Q. Will ordinary sawdust covered with cream digest as readily as bran?

A. I think it would. Yes.

Q. Why is it about 60% of the people in this part of the country suffer from chronic catarrh of the head?

A. It is because they do not live properly, because they

have inactive bowels, because they wear clothes and do not wear clothes properly and do not take cold baths in the morning and do a whole lot of things they ought not to do. Some years ago I was out among the Yuma Indians and I found the teachers who had a mission school there were very much discouraged because they could not get the children to come to school. They said the parents would not let the children come. After considerable urging they finally reluctantly told me that the old Indians said that it made the children sick to come to school. I said, "Is it true?" "Yes," they said, "I am afraid it is." "How do they get sick?" "Well, they have waterbrash and catarrh. They have waterbrash, the old Indians say, because they eat government corn beef. They are used to living on tortillas, roast pumpkin and things of that sort and the Indians say it is the government corn beef." I said, "What do the Indians say is the cause of the catarrh?" "Well, the old Indians say it is because they wear clothes." In the camp they didn't wear any clothes but run about as rabbits and squirrels and were healthy as a boy. When they put on clothes the skin became diseased, ceased to take care of the body, so the catarrh was one of the consequences but the same reason which prevails in this part of the country applies to other parts of the country. The only difference between Michigan and other parts of the country is that while 60% of the people here have nasal catarrh, 75 or 100% of the people in some other parts of the country have nasal catarrh. I am not going to say that every other place in the country is worse than Michigan but really I do not know of any place on the American continent where people do not suffer from catarrh. The only place you can find where a person is likely to be apparently free from catarrh is would be on some island of the sea where the temperature is always practically the same and where people live without wearing very much clothing.

Q. What is the meaning of the word "calorie"?

A. The "calorie" is the measure of heat. The amount of heat required to raise four pounds of water one degree of temperature will be a calorie. The exact definition is the amount of heat required to raise one kilogram of water one degree centigrade in temperature but four pounds of water one degree Fahrenheit amounts to the same thing as one kilogram one degree centigrade.

Q. Why is salt not good for one who has high blood pressure?

A. For the reason that salt causes contraction of the arteries and this contraction of the arteries increases the high blood pressure so the less salt a person who has high blood pressure takes, the better.

I thank you for your attention.

END.