A POSITIVE AND PRACTICAL METHOD OF CHANGING THE INTESTINAL FLORA EMPLOYING A NEW AND MORE POTENT CULTURE OF LACTOBACILLUS BIFIDUS-ACIDOPHILUS

The action of the American Medical Association in refusing official approval of lactose feeding and administration of cultures of the Lactobacillus acidophilus doubtless seemed to many physicians amply justified because of the unsatisfactory results which have disappointed a multitude of progressive practitioners who have recognized the pressing need for an efficient means of combating intestinal putrefaction in a large class of chronic invalids whose enfeebled viscera need to be relieved of the great burden of dealing with the great flood of indol, skatol, pyrrol, ammonia and other putrefaction products absorbed from an inactive and spastic colon.

In his recent book, Lactobacillus Acidophilus, Rettger says, "The large majority of the so-called acidophilus preparations in the market contain relatively few living acidophilus cells." A few years ago, James (American Medical Association, 1927) made a study of more than one hundred samples of preparations labeled acidophilus and found three fourths of them entirely worthless and half of the remainder of little or doubtful value.

Rettger also calls attention to two important facts which have heretofore had little consideration. He says,[1] "We know from long experience that relatively few strains of L. acidophilus newly isolated from feces grow readily in artificial media, and that considerable time is required as a rule, for them to adjust themselves sufficiently to give the various reactions that old accepted and established stock strains do. Similarly, we may argue that continued cultivation in artificial media so modifies the normal 'virulence' for the human or animal host that it finds the natural conditions of the intestine more

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1. Lactobacillus Acidophilus.

or less unfavorable and must again adapt itself to them. This subject is one of fundamental importance."

Few of the commercial cultures purporting to be Lactobacillus acidophilus, liquid or semi-solid concentrates or acidophilus milk, have a background of clinical proof. The unscrupulous exploitation of the Metchnikoff idea of changing or reforming the intestinal flora has in fact brought upon it undeserved discredit, and this no doubt explains and perhaps fully justifies the action of the committee in questioning the method. Careful consideration of all the facts clearly shows, however, that the cause of failure is due, not to error in the fundamental principle involved, but to inefficiency of the cultures used and the methods of employing them.

Since the publication of Bouchard's illuminating book Les Auto-intoxiones, nearly 40 years ago, I have made the suppression of intestinal putrefaction one of the major objectives in dealing with chronic ailments, and believe that some degree of success in accomplishing this has been the chief factor in restoring to health many of the chronic invalids who have visited the Battle Creek Sanitarium. In efforts to suppress putrefactive changes in the intestine every method that seemed to have a sound rationale to recommend it has been thoroughly tested. Very good results have been obtained from antitoxic dietaries; but really satisfactory and dependable results were not obtained until highly potent cultures of protective bacteria, the Lactobacillus bifidus-acidophilus were employed.

Tissier of the Pasteur Institute discovered (1900) that the nursing infant has an intestinal flora consisting almost entirely of a lactobacillus which from its shape he called bifidus. Moro the same year discovered in young children and some adults a lactobacillus which he

called <u>acidophilus</u> because of its high tolerance of acids. These organisms are now known to be identical. In 1913 I retained Dr. Tissier of the Pasteur Institute as consulting bacteriologist and received from him a culture tube of <u>Lactobacillus bifidus</u>. Shortly after receiving it a colleague called on me for advice in case of his infant son who was very ill with acute enteritis and getting worse in spite of all that several physicians had been able to do for him. This was just the case likely to be helped by Tissier's <u>bifidus</u>. To my distress I found that the culture had died in transit, perhaps by accidental exposure to excessive heat. It occurred to me that the useful organism might be obtained from an original source. I found a two weeks' old breast-fed infant and from its napkin obtained a culture of bifidus and gave to the suffering infant. In 24 hours marked improvement occurred and in 2 days the bowel symptoms disappeared.

I then began the extensive use of whey cultures of <u>Lactobacillus bifidus-acidophilus</u>, both by mouth and by enema, and with excellent results in many cases, but only partial success in too many cases to give complete satisfaction. The combination of whey cultures of <u>acidophilus</u> with the fruit regimen or the milk regimen succeeded in some obstinate cases, and the use of liberal doses of Lacto-Dextrin greatly improved average results, but there were still many failures. Almost constant experimental research was carried on by the aid of expert bacteriological and chemical technicians for more than twenty years. Finally a series of experiments was undertaken for the purpose of determining the influence of different foods upon the intestinal flora. It was already known, as pointed out first by Bouchard, then by Tissier and later by Herter of New York, that animal proteins (meats and eggs) promote intestinal putrefaction, and so the research was confined to fruits and fruit juices,

legumes, grains, vegetables and nuts. It was soon discovered that in a milk prepared from the soy bean the Lactobacillus bifidus-acidophilus flourished in a most extraordinary manner. The individual organisms were more than twice as large in size and under identical conditions produced nearly twice as large a count per c.c.

The soy type of bifidus-acidophilus is far more hardy as well as more robust, more resistant to acids and much longer lived.

Lactobacillus bifidus-acidophilus grown in cow's milk.
Length, 8.0 microns.
Width, 0.8 micron.

Rat Type of Acidophilus

Lactobacillus bifidus-acidophilus grown in soy bean milk.
Length, 16.0 microns.
Width, 1 micron.

Soy Milk Type of Human Acidophilus.

All investigators have found that milk is not a good culture medium for Lactobacillus bifidus-acidophilus. It grows slowly in milk, and many times fails to grow at all. At best, so many transfers are required and so long a time occupied in getting it adapted to milk as a medium that it loses its adaptation to development in the human intestine and so is not easily implanted, requiring many weeks of feeding before definite implantation is secured and many times fails altogether. This same difficulty has been found with all artificial media heretofore used, as pointed out by Rettger, but, fortunately, soy bean milk proved to be an exception of an exceptionally excellent medium for growing the L. acidophilus, as is well shown by the accompanying cuts. Two or three transfers are sufficient to bring it to a state of development and growth never reached by milk cultures.

This unique and distinctive property of soy acidophilus milk gives it a potency and efficiency in changing the intestinal flora and implant a sturdy type of L. acidophilus.

For several years the writer and his colleagues of the Battle Creek Sanitarium and The Miami-Battle Creek of Miami, Florida, have made use of soy acidophilus milk cultures with success. Two of these physicians who have had an exceptional opportunity for observing and testing the comparative merits of soy milk acidophilus cultures state that they "have been able by its use to change the flora so completely as to arrest intestinal putrefactions, as shown by repeated bacteriological examinations, and have achieved these results in many cases in which other means heretofore known had been employed without success. We have made use of cow's milk cultures of acidophilus, the so-called acidophilus milk, in many cases before becoming acquainted with the advantages of soy acidophilus milk. We saw in many cases some temporary improvement in the character

of the stools, but were never able to effect anything like a complete change. We have also made use of bulgaricus cultures, but found it impossible to implant the bacillus bulgaricus in the human intestine even after long continued use, indicating that the little improvement observed was due to the presence of lactose and not to the bacillus. Soy acidophilus cultures give quicker results and the percentage of acidophilus in the stools reaching 85 to 90. From our experience with hundreds of cases in which the results have been carefully checked by expert bacteriological examination of the stools we are convinced that soy milk cultures of the Lactobacillus acidophilus are far more potent as a means of combating intestinal putrefactions than cultures in which cow's milk is the culture medium. We were never able to get high percentages with cow's milk cultures."

A notable example of the efficiency of the soy acidophilus milk culture in changing the intestinal flora is afforded by the cure and maintenance in health by its use of the Canadian quintuplets. When they were attacked by "bowel trouble" in the fall of 1934, when between three and four months old, a supply of the soy culture was placed in the hands of Dr. Dafoe and by him was given to the quins with the results that they quickly recovered and have remained in good health since, except for brief intervals when for experimental purposes the soy acidophilus was withdrawn, and invariably with the result that the bowel trouble returned. In the words of Dr. Dafoe, "The stool became bad and they did not do well; they had too much gas and distension."

A serious bowel disturbance occasioned by feeding liver was quickly cured by increasing the daily intake of soy acidophilus milk.

The acute intestinal disorders of infancy and childhood are quickly mastered by soy acidophilus milk. Colitis and other chronic bowel dis-

orders associated with bacterial infections and putrefactions, yield more slowly, but no less completely to liberal intakes of soy acidophilus milk.

Soy acidophilus milk has several advantages aside from its value in changing the flora. It does not require refrigeration. It keeps best at ordinary living room temperatures (70° F.). The count lowers slowly, so that it is effective for several weeks (6 to 8 or even longer).

Another important point of superiority is the fact that it agrees perfectly with persons who are sensitized to cow's milk.

Soy milk taxes the digestive organs far less than ordinary milk because it does not form hard curds in the stomach as does cow's milk, and so may be given to infants and delicate invalids who do not well tolerate dairy milk.

Soy acidophilus milk has the added advantage that it is strongly basic (13.5 while cow's milk is but slightly alkaline (2.6). That is, it has five times the alkalinizing power of milk, giving it high value in cases of acidosis.

While soy acidophilus milk is neither a panacea nor a specific remedy it renders a fundamental service of incalculable value by suppressing intestinal putrefaction.

7-2-36

AN EARLY EXPERIENCE IN CHANGING THE INTESTINAL FLORA

During a visit to Europe in 1911, I learned from Dr. Tissier, of the Pasteur Institute, of his discovery in 1900 of the Lactobacillus bifidus. He found this acid-forming organism in the stools of young infants while studying during some years on the flora of the human intestine. He noted that the stools of new born infants were at first sterile. When protected from contamination, they remained sterile for several months. Within a few days, however, the various species of bacteria found in the adult stools were found in the infant's stools.

Very soon after the infant began to nurse, a new organism, a Lactobacillus, to which he gave the name "bifidus," made its appearance and rapidly increased. With its increase, the colon bacillus and its congeners diminished, and within two or three weeks the bacillus bifidus occupied the field, constituting ninety to one hundred per cent of the intestinal flora, the B. coli and other bacteria which appeared at first having disappeared.

After returning home in June, 1912, I obtained from Dr. Tissier, who I had engaged as a consulting bacteriologist for the Battle Creek Sanitarium, a culture of his bacillus bifidus, together with directions for propagating the organism. A few months later I was consulted by a medical colleague in behalf of his infant son, aged two years, who was suffering so severely from "cholera infantum" that his life was despaired of. He had been ill for more than two weeks and was in quite a desperate condition. All other current remedies having been em-

ployed without success, it occurred to me to make a trial of the _bacillus bifidus_. As this organism w had driven out the _B coli_ and other harmful bacteria from the colons of new born infants, why would it not prove of equal service to a sick child?

I was greatly disappointed to find that the culture of _bacillus bifidus_ obtained from the Pasteur Institute had died. Knowing of no other source from which to obtain the _bacillus bifidus_ culture, I obtained a soiled napkin from an infant two weeks old, prepared from it a culture, and the next day gave the sick infant by enema am ounce of the _bifidus_ culture. The next day the infant was greatly improved.

The enemas were continued, being given four or five times a day for a couple of weeks. The infant's progress toward recovery was so rapid that it seemed almost miraculous.

This experience encouraged me to make other experiments. By request, the bacteriologist prepared the whey cultures of _bacillus bifidus_, which were given to patients by enema and _per orem_. Doses of half a pint to a pint and a half. So much improvement was noted that the treatment became in a few months very popular, and was employed in the treatment of patients of the Battle Creek Sanitarium for more than twenty years. The number of patients treated by this method amounted to many thousands.

On learning of my success in changing the intestinal flora by the use of _Lactobacillus bifidus_, Dr. Tissier began the use of cultures in his private practice in Paris, and soon built up a lucrative practice,which he continued until his death.

In 1921, I invited Dr. Rettger, professor of bacteriology in Yale University, to visit Battle Creek for the purpose of checking up the work and making any possible suggestions whereby its efficiency might be increased.

Dr. Rettger learned of the Bacillus acidophilus from Morro, which at that time was supposed to be another species of Lactobacillus, and at the Doctor's suggestion, began the use of this organism, with the hope that it might be more easily cultivated than the bifidus, and that it might be more readily implanted.

I also received the impression that the acidophilus was especially adapted to adults, while the bifidus was especially adapted to infants. This is now known to be an error.

Professor Rettger has proven that bifidus and acidophilus are really the same organism though differing in form. For this reason, the organism is frequently designated by physiological writers as the Lactobacillus bifidus acidophilus.

After the visit of Professor Rettger, I began the use of milk cultures of Lactobacillus bifidus acidophilus in place of the Bacillus Bulgaricus, the use of which had proved highly disappointing.

In this form, Lactobacillus bifidus acidophilus has now been in use at the Battle Creek Sanitarium since 1914, and until 1935m more than 20 years, during which time more than 28,000 gallons of the culture were used, and with definite beneficial results in a great number of cases of intestinal toxemia and various forms of indigestion.

Lactose, or dextrin, or more properly, Lacto-dextrin, has been used in connection with the acidophilus milk as well as with the new type,-Soy Lactobacillus bifidus acidophilus.

which has been used extensively during the last two years and with increasing satisfaction as the technic of its use has been gradually perfected.

A Lecture in the Old Sanitarium Lobby, July 6, 1936

By

JOHN HARVEY KELLOGG, M. D.

Fifty years ago, scientists told us that the universe was a self-propelled machine; that it was simply a mechanism and that there was no intelligence in it; that there was no power behind it; that it was simply a self-propelling and self-developing and self-evoluting machine. At the present time scientists think differently. I do not know a single very eminent scientist today who does not admit the truth that was proclaimed with great eloquence fifty years ago by the famous preacher of Boston, Joseph Cook, in the old church there. He used to say with a great deal of emphasis, "There is a power, not ourselves, that works for righteousness," and this power, not ourselves, which works for righteousness works for everything else. It is the power that is behind all of the operations of Nature.

When we look at a flower or look through a microscope and peer down at the minutest specks of life, we see evidence of an intelligence at work. We can not escape the great truth that there is a power behind, a personality at work, a great universal

personality that is regulating things and controlling things.

Such scientists, for example, as Prof. Milliken and the great Prof. Einstein say with a great deal of emphasis that we can not account for life. We can not account for the beginning of things. We must recognize the fact that back of it all there is a great unknowable intelligence at work.

Now, nowhere is this great intelligence so readily recognized and so definitely and positively at work as within our own bodies. When we move a hand or a finger, close an eye or perform any other bodily activities, for example, we exercise our will. We command and the thing is done. For instance, I wish to close my hand. I order the muscles of my hand to contract and they close my hand. I order the muscles on the other side of the arm to contract and they open my hand. Now, if I do not send an order to my hand it does not move but remains immovable.

The same thing would be true of the heart if it were not for the fact that there is another power within the body, another will, at work which commands the heart. The heart is a muscle like the muscles of the arm. It is simply a hollow muscle which makes a pump

of it. When it contracts, it diminishes the size of the cavity, and because it is filled with blood, as it contracts, the blood spurts out. It is forced out by a jet into the arteries all through the body. Now, every time the heart beats, it has to have an order just as my hand must receive an order when it moves.

Suppose you try now to make your heart beat faster or you seek to make it beat slower. Can you succeed? Can you compel your heart to go faster or slower? No, indeed. The heart pays no attention to your orders. Suppose you say to your lungs, "Now stop acting" and you hold your breath. You can not hold your breath until you become unconscious, perhaps, but when you become unconscious your lungs begin to act again. So it is impossible for a person to commit suicide by holding his breath. In order to commit suicide you have to have something around your throat to choke you so you can not possibly breathe, and so when a person wants to commit suicide he generally puts a noose around his throat, stands up on something high and jumps off, and then he is in a position where he can not retreat; or he jumps into the water so he is submerged and can not come in contact with the air and so he can accomplish what he desires; but he can not compel the lungs to

cease action long enough so as to extinguish life. So you can not make the heart go faster or slower by simply thinking.

The same thing is true of nearly all of the organs of the body. All the great internal organs, the heart, the liver, the stomach, the lungs and all the other internal organs act independently of the human will. So there are two wills at work within the body.

This power that keeps the heart beating is known as the pace-maker. The physiologist recognizes this power that sends instruction to the heart every time it ought to beat, beat, beat, beat. If you listen to the heart you can hear it speak. Luff tup, luff tup, luff tup, that is the song of the heart. It goes on singing this song forever, but behind the heart there is a pacemaker. There is a power, a will, a personality behind the heart that tells it when to beat and how hard to beat. Physiologists now recognize this fact. A message is given to the heart. We have a means by which we can make that message visible. We have a little instrument called the electrocardio-graph, and if you take the two electrodes in the two hands, one in the right hand and the other in the left hand, it will write down on a strip of paper that passes in front of a little opening the message that is

being sent and so you can see it. This is what it looks like (illustrating). This record is made by an electrical current which is produced by the message that travels down over the heart. Here is the heart, we will say (illustrating). Here is the vena cava, the large vein. Here is the little center from which the message comes, and this little center sends down a message. It travels down to the heart, first to the auricles and then it comes on down to the ventricles and it is distributed all about the heart, to every part of the inside of the heart, and by reading this electric record here we can tell just what is happening.

Sometimes it happens that an obstruction develops here. An obstructions is formed so that the message is interrupted and can not go down to the ventricles. I remember a case of that sort under my care some months ago, in which the message could only go this far (illustrating). This is the lower part of the heart (illustrating), the ventricle, which exercises the greatest force and propels the blood all over the body. The auricles simply drive the blood into the ventricles below and then when they contract they drive the blood out all over the body. This message was interrupted right there and the consequence was we did not see this

curve, but instead this was the sort of curve we saw because the message here was interrupted (illustrating). So we know that there is a personality talking to the heart, instructing the heart and telling it just what to do; and the same personality presides over the stomach and over every other organ in the body.

We can readily see that there are two personalities at work in the body because we find these two classes of organs, the voluntary organs and the involuntary. Now, all of the voluntary organs are under the control of the human will; but the involuntary organs, the heart, the lungs, the stomach, the liver and parts of the nervous system, these are all under the control of another will, and the proof of it is the fact that when the human will retires, is asleep, for example, so that we are unconscious, still the heart goes on beating right along. That shows that there are two personalities constantly at work.

We have two kinds of motion, involuntary motion and voluntary motion. The work of the heart is an involuntary motion. All the involuntary functions are not onder the control of the human will; they are under the control of the creative will. That is the personality

that takes care of the heart and that regulates the heart. It is the same power that made the heart. The same power that created the heart takes care of the heart and keeps it going. It is like a delicate marvelous machine made by an engineer, and after the machine is made the engineer has to stay right by it to keep it running. Nobody else knows how to make it go. That is what happens in the body. The same power that made the body has to stay with it and take care of it.

You say that the body was created with the power to re-create itself and go on and so developing a race. But this is a mistake, my friends. There is a power, not ourselves, that is constantly at work building and creating, repairing and curing when disease threatens. This power is continually at work. We have the proof of it in what we see in the development of a human being. Starting with one little cell smaller than the head of a pin, this little cell divides and develops into an adult human being. It is not possible that the thing itself should accomplish this thing. There is a building process going on and if you can watch it through a microscope you can see movements in the cells and parts within the cells. They are moving back and forth with the precision of a body

of soldiers. They move in one direction, then another direction, by and by separate, then gather together in groups, and it is all done with the order of a body of soldiers that are on dress parade.

Now, this shows there is going on in the body this continual creative work. We see evidence of this in the blood, for example. We have in our bodies 25 million million red blood cells. It is the red blood that makes the cheeks rosy and the lips pink. It absorbs oxygen from the lungs and carries it everywhere throughout the body. It is the same power at work that keeps the heart going continually as Oliver Wendell Holmes said in his lovely little poem about the heart, "No rest this this thrumming slave may have." No rest! It goes on forever so long as life lasts. It is because the power that made it stands right by it and gives it its orders.

There are 25 million million red cells in the body and a million million of them die every day because each cell only lives 25 days. In 25 days the entire mass of blood within our bodies, somewhere about one-fourteenth the total weight of the body, is made new. If we are 140 pounds, we have ten pounds of blood, and all this blood is made new every 25 days. That means a million million blood cells are created

every day. That means eight million blood cells die every second of our lives and eight million blood cells are created to take their places. This is not a fairytale I am telling you, my friends. It is simply the actual scientific fact. Every physiologist knows that the blood is being continually created and that the same thing is going on with other cells all throughout the human body. It takes, in other words, the same power to keep us alive that it took to make the first man and to make us. That power continues at work within our bodies, building and rebuilding and repairing just as long as we live. That is why it is possible for a sick man to get well. Getting well is a process of reconstruction. It is making the old sick body over. The old sick body has to be torn down, carried away and thrown out and a new body built in its place. This process requires the taking of food. We eat and supply material that has been lost, has died and been carried away. We have to eat our own weight every month, perhaps more than that. Many people eat more than that. I remember one man weighed after dinner and weighed five pounds more than before dinner. So I think it is a moderate estimate to say that we eat at least our own weight every month of our lives. We take this

food into our bodies to take the place of portions of the body that have died and have been cast out. So this re-creating process is going on continually. This requires the presence within us of an infinite personality that is constantly at work.

It is not extraordinary to conceive of an infinite personality. We can conceive of infinite space, or we try to. We can not picture to ourselves an infinite space, but we can recognize it as a fact that space is infinite. There can not be such a thing as a border to space because if we try to think of a border we immediately raise the question What is on the other side? What is beyond that? And yet we think there must be an end somewhere. There must be a limit to space somewhere. When we try to conceive of such a limit we immediately think "What is beyond that?" So we see we can not think of such a thing. It is either a boundless space or a limited space. You can not conceive of either one. They are not within the power of our finite minds to comprehend.

The same thing is true of time. We believe time to be infinite. We can not imagine such a thing as the beginning of time. We try to think of it and immediately we think there must have been a beginning

somewhere and we go back to that beginning and at once we think, "What was before that?" And so with the end of time. We know there must be an end somewhere and yet when we try to think of that end there immediately comes the question, What comes after that?

So you see it is impossible to conceive of infinite things. They are beyond us. They are outside of our comprehension and the same thing is true of this infinite personality. We can not form any conception of its shape or its size or any limitations of any sort because it is infinite. Now, perhaps that is a difficult idea for you to take in and the difficulty of accepting this idea is the fact that we have not a clear idea of personality. We think of personality as connected with form.

I will tell you of a little experiment I made that convinced me that was not true. Sixty-one years ago I was in a physiologic laboratory making experiments with animals, studying their tissues microscopically and also making various experiments to study the functions of the human body. One day the Professor gave me an experiment to do which distressed me very much. He gave me a large

frog and a pair of shears. "Now," he said, "you must take these shears and cut off this frog's head." That was one of the hardest things I ever did in my life.

I had an unusual experience some years before when I was a boy about ten years of age. I was one day driving the cows to water and I had a whip in my hand with a long lash and I used to crack the whip occasionally to encourage the cows. I did not whip the cows, but encouraged them with a sharp crack of the whip. On passing along the road I saw a robin sitting in a big tree. I said to myself, "I will see how near I can come to it." Of course I had no idea of trying to hit it. So I gave my whip a turn and cracked it loud. The cracker at the end of the whip hit the little robin on its head and it fell over dead. I was smitten with such remorse and distress I think as I never experienced in my life before. I fell upon the ground and sobbed and sobbed and on my knees promised God I would never kill another thing as long as I lived, and I have not. I even walk around the cockroaches. I confess I had to kill one or two mosquitoes, but even that I hesitated about.

To cut that frog's head off was the hardest thing I ever did,

but by shutting my eyes I cut it off. The Professor said, "Lay the frog on the table." So I laid it on the table and to my great surprise this frog behaved as though it were alive. It sat up. I felt obliged to it. The frog sat upon the table just as well as though it had a head. The Professor said, "Hit the table." So I hit the table and the frog leaped out into the middle of the room-- it was quite a large room-- and fell upon the floor on its back. It immediately turned over and sat up again as before, apparently as live and happy as when it had its head on. Then the Professor said, "Stamp upon the floor," which I did, and the frog jumped. The Professor said, "Stamp again," which I did and the frog jumped again and continued jumping until it reached the side of the room. I continued stamping and every time I stamped it leaped against the wall, butting its bloody headless body against the wall. I can see the red spot it made on the baseboard this very moment. Well, the Professor than said, "Bring the frog back to the table," which I did, and laid it on its back. Now the Professor said, "Rub a little acid on its stomach" and gave me a bottle of acetic acid. I rubbed this on the frog's stomach, and immediately it brought up its hind feet and began rubbing its stomach as hard as it could to

wipe it off. The Professor said, "Put the acid on its left thigh." I did it and the frog brought up the right foot and rubbed it off the left thigh. Then the Professor said, "Hold down the right thigh." Well, I wondered what this frog would do when I held it down. I expected to see it struggle to get away, but instead, to my great amazement, it simply rubbed its left leg with the tips of its left foot, rubbed the acid off its left thigh. Think of a headless frog performing an act like that. If I had had my hat on I should have taken it off. I said,"Here is something very surprising."

This experiment followed me for many years. How could such a thing happen, a frog with its head off and without a brain performing all these ingenious acts? I could not understand that phenomenon until many years later when I read in a very learned German work on general physiology by Professor Fehrborn, an eminent physiologist, referring to the experiment I have just described (it is a classical laboratory experiment). "This experiment proves that the frog has personality in its spinal cord."

It gave me a new conception of personality. Personality does not mean a person, a man or a woman. It does not mean that sort of

thing at all. It means the possession of the power to will and to do and to think and to plan. That is why the Professor recognized the presence of personality in the spinal cord because those acts showed the frog was adapting itself to an emergency. It was doing something, perhaps, it had never done before. I can not imagine that frog had ever used its left leg in the way it did. It certainly was an extraordinary adaptation of means to an end.

Now we see that the essence of personality is not form or shape, but it is the expression of will, of design, of a plan. Go into the woods and you find a nest. You know behind that nest there is a builder somewhere. The nest would not be there if there had not been a builder to plan the nest and to make the nest. So when we see a human body we know that behind it there is a personality and this personality is working in harmony with the human personality. We are dual beings. Our bodies are controlled by a human personality and a creative personality, the power that made us, the infinite personality, if you please.

We believe in infinite space and in infinite time. Why should not we believe in an infinite personality as well? We have the same proof for one as we have for the other. We know space exists because

we can measure a portion of it. We are in contact with it and we have evidence of its existence. We know time exists, infinite though it may be and beyond our comprehension and yet we know that time exists. We believe in time. We recognize it and this is also true with reference to the infinite personality. We know that this personality exists because we see the evidence of its work. In every flower, in every tree, in every cloud, and in every sunset we see evidence of the existence of this infinite personality with an infinite power to work with an infinite sense of beauty and of artistic taste. We see all of this exhibited in nature all about us.

Perhaps some of you are wondering what these remarks have to do with our subject. But first of all I think it is important that we should recognize the fact that there is a personality behind, a power that works not only for our moral welfare, but for our physical welfare as well as that our lives depend upon the working of this being. We have infinite evidence of it in every flower, in every living thing, animal or vegetable. In all the inanimate world about us we have proof of the existence of this infinite creative power continually at work. Dr. Milliken tells us that even matter is being created continually.

The important question to the average man who thinks about spiritual things and the here and hereafter in a serious way is Does this great personality have anything to do with me personally? Is it interested in me? If I am in trouble is there a place where I can go for help? That is a great question, I am sure, for serious thinking people. Perhaps you have been so brought up you would never entertain any apprehension on this point. You never had a doubt. You are fortunate if you are. There are a great many frivolous people in the world nowadays and they are spreading throughout the world a spirit of unbelief and a spirit of skepticism. I think the number of people that are in the habit of praying today is much smaller than it was when I was a boy. When I was a boy there were family prayers every morning and every evening in almost every home. Today I think the family prayer is rather infrequent in homes and the number of people who believe in prayer at the present time is, I fear, comparatively small.

I was talking with a lady the other day and she was in great despair. She had no hope she was ever going to get better. She had been ill a long time. She thinks she is never going to get well. I

think she will. She was afraid she would not. I asked this lady if she was a church member. "Yes," she said, "I belong to the Episcopal Church." The next question was "Do you pray regularly?" "No," she replied, "I don't pray. I gave up praying a long time ago." "Why did you give up praying?" "Because I found it did not do any good. I did not get any answers to my prayers."

That is a very great mistake and the thing I want to show you tonight is that every one has had very definite and very positive answers to prayer and that there is a source to which you can go and be sure of getting an answer if there is an answer.

I must begin by telling you of a little incident that occurred in my experience several years ago. I was sitting in my study at work alone. It was rather late twilight, just beginning to be a little dark. A sudden very shrill sound came in the window, a very shrill shriek, very high pitched, almost behond the limit of hearing it was so very shrill, and then another and another and another. My man, who was sitting near me, seized a staff and ran out and found a blacksnake several feet long swallowing a tree frog. It had one of the frog's hind legs in its mouth. The little frog whirled around and seized

the snake's head and was hanging on and shouting with all its might for help. It was astonishing how loud a noise so small a creature could make. My man put the staff upon the snake's neck and openened its mouth and the little frog hopped off three or four inches and remained quiet there, evidently recognizing the fact that help had come and that it was no longer in danger. After resting a little while it hopped off in the grass happy.

That little frog was praying. That cry of distress was a prayer just as much as any prayer ever uttered. But you say that it was calling other frogs to come to help it. Did you ever see a frog help another frog? Frogs don't know enough to help one another when they are in trouble. That frog was calling to its maker for help. It was not calling to my man for help. It did not know my valet was sitting in my study with me. It had never heard of him. It was simply calling for help, obeying an instinct.

Every creature that has a voice calls for help when it is in trouble. Did you ever think of that? The more you think of it the more you will be sure it is a fact. Every creature that has a voice calls for help when it is in trouble. It utters a cry of distress. You recognize

the cry when it comes. You know the creature is in trouble. If a dog barks in the night you know by the nature of its bark whether the dog is in trouble or whether it is making trouble. If it is making trouble it has one voice and if it is in trouble it is another voice altogether.

When you hear a man, if you will listen a moment you know whether he is praying or whether he is quarreling or whether he is exhorting. You know by his voice. And this cry of distress has a characteristic sound. When you hear a little baby cry you know whether that baby is sick and suffering or whether it is having a tantrum. It is an entirely different sound. And so this voice of prayer, my friends, is characteristic. It is the call that is made by every creature when it is in trouble. It is not calling on other creatures to come to help it. It might be a man and a man might make such a call, but if there is no human being about and a man is in trouble and distress he cries out just the same.

I will illustrate this principle by a circumstance which occurred in the London zoo. A little chimpanzee became a mother and when she saw the little baby chimpanzee lying on the floor she was terribly freightened. She fled to the remotest corner of her cage at once chattering with fear

until the little one cried. By and by the baby whimpered. Down came the mother with a great bound and placed the little one to its breast and mothered it in real human fashion. To whom was that baby crying when it whimpered? To what was it speaking? To whom was it appealing? It was appealing to its maker. When the mother heard that cry the mother instinct was aroused instantly and instantly she responded. That was the call of prayer.

You will perhaps remember the story of Hagar when she took her little son and went out into the desert because Sarah was jealous of her and Abraham cast her out. The little boy was crying and she could not bear to hear him cry, so she laid him down behind a bush. She found a bush. She was hunting for water in the Sahara desert where I have traveled many miles myself, so I know just what it looks like. It is a great sea of sand, nothing but sand. Where you see a bush you know there is water. Never a blade of gass grows anywhere unless there is water, a spring or water from some source. So when Hagar saw the bush she knew there was water. She came to the bush, but could not find the well. She knew there was a well there somewhere, but she could not find it. Why? Because the wells in the desert are dug down, some of them,

very deep and they are covered with a flat stone. Otherwise they would fill up with sand which is continually in the air. There are whirlwinds which churn up the sand in hills until enormous dunes are built and make waves like the waves of the sea. A flat stone is put over the well and sand drifts over it. Hagar was hunting for the well. If she had not laid the little one down behind the bush she would not have found the well. While she was roaming about trying to find the well she hit her foot against the stone that covered the well. She brushed away the sand and there was the well. "And God heard the voice of the lad," not Abraham's prayer or Hagar's prayer.

When one cries out for help he is obeying instinct. Every creature in trouble callsfor help. My friends, that instinct is within us. Whether a man believes in God or does not, when he is in trouble he cries out. He may not cry for God to help him. He cries out in distress and it is the cry of distress that appeals to his maker. "God heard the cries of the lad" the Good Book says. That is the way it is with all of us when we are in trouble. When we cry out for help we are appealing to our maker.

I can point out to you the very mechanism within our bodies through which prayers are heard and answered. As I told you a little

while ago, demonstrated, I think, there are two personalities within the body. The human personality presides over all voluntary acts.

I am going to ask you a question. I should like to have some of you answer this question if you can. Where do ideas come from? Where do we get our ideas? Where do ideas come from? I asked a professor from Columbia University some time ago that question. He said, "We make them, of course."

"Well, now," I said, "Professor, I am very short of ideas today and it would be of great assistance to me if you would make a couple of good ideas for me. I should appreciate it very much." So the Professor began looking for ideas. He looked about the room and all around and by and by made a movement with his hand and then with both hands and by and by perspiration was just standing on his brow, but he did not find a single idea. He did not make one. So I finally said, "Professor, you can not make ideas. Ideas are new creations and you can not make an idea any more than you can make a flower." Ideas come into our brains already made. Don't you say, "An idea hit me"? Don't you say, "An idea popped into my head"? I have heard people use that expression sometimes. Don't you say, "An idea just occurred to me"?

Haven't you heard people say, "Where did you get that idea?" "It came out of the blue." What does it mean? It came from somewhere outside of my consciousness. I think everybody recognizes the fact that ideas originate outside of the consciousness, but not outside of us. Ideas originate in the part of the brain known as the sub-conscious. There are certain ganglia that are found at the base of the brain that are connected with the sensorium. The back part of the brain is called the sensorium. That is where ideas, memories and pictures of our experiences all are stored. They are all stored up in the sensorium, and these ganglia send little threads of nerve fiber into all parts of the sensorium so they are in touch with every-thing that is stored up there. This is the subconscious. This sub-conscious is the place where the unconscious thinking is done.

There are two kinds of thinking done in the brain. There is the ordinary thinking which simply takes ideas and juggles them combines them into sentences, plans, etc. That is the conscious thinking. Then there is the unconscious thinking, the creative thinking that is carried on in the subconscious . You have often had an experience that demonstrated this. You were thinking of something at night, some problem perhaps when

you were a boy or a girl in school. You remember you worked hard on the problem and you were so sleepy you could not keep your eyes open any longer and went to bed and in the morning you woke up and had a solution to that problem which you could not work out the night before, but in the morning it was all solved. I wonder how many of you had an experience of that kind? Why, half the hands in the audience were raised. What does that mean? It means your unconscious mind, or the creative mind that works in the subconscious, had been working while you were sleeping. That is what it means. You have had that experience, I am sure, every one of you. You have had social problems and moral problems you could not answer at night, but in the morning it was all clear.

These morning thoughts are so important I have many a time said to myself, "I am going to write down all my morning thoughts." I have started to do it a good many times, but I have been kept so busy I did not keep it up, but I always have a tablet with me when I go to bed and every morning when I waken, if I had a refreshing sleep, I find my mind is full of ideas and I have to write them as fast as I can so they will not get away. I have practiced that for many years. The best ideas I ever got I got in the morning.

Now, what have we got to do with the subconscious? I have just

told you one way in which you can make it work. When you go to bed at night think of the thing that you are interested in. Concentrate your mind upon it before you go to bed at night. That concentration is real praying. Prayer is not the words you say. Prayer, as the poet said, "Is the heart's sincere desire." That is what prayer is, "The heart's sincere desire" whether you express it or whether you do not. Real need is prayer. That is what the creative personality recognizes, real need. You may call for something you do not need. I remember some time ago a man called at my kitchen and wanted a ham sandwich. Never a ham sandwich had been there. Never a ham had been there. The lady went to the door and said, "We haven't any ham sandwiches, but we can give you something a great deal better"; and he had a Protose sandwich which he liked so much he came the next morning for another and was very much pleased to have a better sandwich than he had ever eaten before.

That is the way it is with prayer. We call for a thing we think we need. The thing that the creative personality takes recognition of, and that is the real prayer, is the thing that we need.

You say, "How are we going to make use of the subconscious? Just one way. Concentrate your mind on the thing that is troubling you

at night. Concentration is real prayer. I will show you how to make use of these principles in everyday affairs. Suppose you ask this question. You say, "I wonder whether this is right? I wonder whether I ought to do this or whether I ought not? I must think about that." What are you doing when you say that? You are not making a decision. What are you doing when you are thinking? You are waiting. By and by the idea comes. Where does it come from? You do not make it. It comes from the subconscious. It comes from this power, not our human personality, not ourselves, but outside of ourselves but working within our bodies. The same power that keeps the heart going is carrying on this thinking.

Our greatest psychologist, the late William James, a professor at Harvard, had this same idea. If you read his book "Some Religious Experiences"-- I happened to run across it a short time ago-- you will find that he recognized the subconscious as the seat of religious emotion because he recognized the fact when we say, "Now I wonder what is right?" that we are calling the subconscious into action. That is the same thing we do when we say, "Now I wonder what is the best thing to do about this? I wonder what I had better do?" and we wait. We are not making any ideas and we are not making the answer. Of whom do we ask that question? When

we say, "Now I wonder what I ought to do about that? What is best to do?" When you ask that question whom are you asking that question? You are not asking it of yourself because you know you do not know. You are conscious of the fact that you do not know and that it is why you raise the question, so you certainly are not going to a source you know does not know the answer. You are raising the question and asking it of the great source of wisdom. That is where you get your information. By and by the answer comes and it comes from the subconscious where the involuntary thinking is done, where the creative thinking is done, and that thinking is done by the power that made us, by the power which the Christial calls God and the agnostic calls the unknowable. It is certainly the great creative intelligence we are talking to.

Let me give you the final proof of this thing which I believe you will all recognize. First let me raise this question, How can we get help from this source? There is a very systematic and a very efficient way of getting help from this source of wisdom that I have tried to place before you. It is by concentration. By concentrating the mind we open the door into the subconscious and we put a problem up to the subconscious to ask it to find a solution for us by concentration.

So when we say, "What shall I do about this? What is the proper thing for me to do? and we think intently about it, we set the subconscious to work and by and by the answer will come back. When we concentrate upon something, think of something, we open the door into the subconscious and put the problem in and get the answers back in the same way. We open the door into the subconscious. We open the door into this great treasury of knowledge and wisdom when we concentrate upon it.

When we pray we simply concentrate in the most effective manner. When we are in trouble and call out for help that is real praying. I am not talking now about ceremonial praying. It is wholesome, but it is not the kind of prayer I am talking about. That is not the effective prayer. Real prayer is when one finds himself at the end of his rope and cries out for help. I have had that experience sometimes. "What shall I do?" Whether you make that appeal in a personal way or not, whether you say, "God, what shall I do?" or whether you simply cry out for help, the results are the same because it is the need that is real prayer. It is your need. Your Maker is interested in you. You say, "How do you know that?" Every mouthful of food placed in the stomach is an appeal to the Creator for help. Why

doesn't the stomach digest itself? The stomach digests the things you put into it, things you never ought to put into it, such as an oyster's stomach and everything else. Then why doesn't it digest your stomach? Why doesn't it digest itself? I am sure there is not a person here who can tell me. No physiologist can tell me. No man living can answer that question except in one way. He must admit the power that made the stomach stands right by it and takes care of it. If the gastric juice comes in contact with the skin it digests the skin, but it does not digest the stomach. If the gastric juice goes down into the duodenum it would digest the duodenum and make a hole in it if it were not for the fact that the bile pours out and neutralizes it. The bile and pancreatic juice neutralize the gastric juice and destroy its power to digest and to do damage to the small intestine.

How are we going to get answers to prayer? How may we put the problem up to the subconscious? It is just as natural as breathing, my friends. Praying is just as natural and just as physiologic as to breathe. Everything that has a voice prays when it is in trouble. We do a great deal of praying which we do not recognize as praying. Whenever we raise that question, "What ought I do do?" that is a prayer.

We are asking the question not of ourselves, because we do not know, but we are asking the question of the power that made us, and so the way to bring this function into activity is to concentrate the mind. Concentrate upon the subject in which we are interested, and in prayer we have the most intense concentration, because when we are in trouble and we have tried everything else and we do not know what else to do and now the stage of consciousness is empty, it is not kept active, it is all empty waiting for the answer. "What shall I do? What shall help me?" We make this appeal and if there is help for us that is the way to get it. I am not going to say that everything we call for we are going to get because it may be impossible. The power that presides over us and within us, this power must be consistent. It must be consistent; hence if we ask for a thing that is inconsistent, that is unreasonable, that is likely to do us harm, we won't get it. We won't get help in that way. So, as I said before, prayer is simply intense concentration. I won't say simply intense concentration because it is more. The more faith we have the more intense will be the concentration and the more certain we will be of getting results.

You say, "This is a new philosophy. I do not know whether it is

sound or not." I am going to give you simple proof of it which I think you will recognize. If there never had been any food would there be any hunger? Evidently there would not be. If there were no water and never had been any water would there be any thirst? Now, my friends, if there were no such thing as a great source of help to which we can appeal when in trouble would there be a universal instinct to call for help when we are in trouble? If there were no help would there be an instinct planted within us to call for help when we are in trouble? I am sure you can see, my friends, every one of you, it is impossible there should be such a thing as a universal instinct to call for help when in trouble if there is no help upon which to call. You see that is an utter impossibility. So the fact that this universal instinct exists that every creature calls out with a voice of distress and appeal when it is in trouble that is absolute proof there is a source of help and that is the way to get the help.

Now, my friends, won't you apply this to yourselves? Concentrate your mind upon the thought of help. You can help yourselves and this is the real mind cure, if you please. This is the real faith cure. The real cure comes in concentrating the mind upon the things that are likely to help us. Appeal for help. Call upon your maker for help. You may say, "I do not

believe in your kind of God." It does not make any difference at all about that. It does not make any difference whether you believe in an Episcopal God or Methodist God or Baptist God. The different conceptions of God make the difference in theologians. That is what theologians are quarreling about, the different conceptions of the Divine Being. It does not make any difference what kind of being you believe in. The fact remains the same that there is power for help. Cook said,"A power that works for righteousness," that works for healing, that works for comforting worried souls, and that power we can all appeal to and we can be sure to get all the help there is.

I thank you.

8-16-36

CHANGE OF THE INTESTINAL FLORA

The intestinal flora is the scientific term applied to the group of germs which grow in the intestine and are found in the stools. These germs are studied by bacteriological examination of the stools. Germs find entrance to the intestine through the air we breathe, the water we drink and the food we eat and also indrectly through contact of the hands and the other parts of the body with germ-infected materials. More than a hundred different kinds of germs have been found by bacteriologists in examination of the stools. Of these many different kinds of germs, four are of chief importance. These are the colon bacillus, or B. coli, Cl. Welchii, commonly known as Welch's bacillus, the enterococcus, and acidophilus. The colon bacillus and Welch's bacillus, especially the latter, are the germs that produce gas. These and other germs sometimes become highly virulent. They are associated with putrefaction and produce highly active poisons. The acidophilus is a sugar-fermenting germ that produces lactic acid. It is, in fact, a buttermilk germ that has become accustomed to living in the body which other buttermilk germs are unable to do. It is antagonistic to the putrefactive and disease-producing germs which live in the colon and for this reason has been selected by Nature to act as a body-guard in opposing the development of the putrefactive and pus-forming germs in the intestine. It converts lactose, or milk sugar, into lactic acid, which makes it strongly hostile to putrefactive and other pernicious bacteria that find their way into the intestine. It is for this reason that this germ has been selected by Nature to serve as a defense against the pernicious bacteria which are always finding their way into the intestine.

When an infant is born into the world no germs can be found in its stools, but in a day or two its stools are swarming with germs of various sorts. When it begins to nurse, a new germ appears, the bacillus acidophilus,

Nourished by the high percentage of milk sugar found in breast milk, the acidophilus grows so rapidly it soon outstrips all the other bacteria growing in the intestine and by acidifying the intestinal contents causes the pernicious bacteria to disappear. When the infant is two or three weeks old, the intestinal flora consists almost exclusively of bifidus-acidophilus which is the normal flora for a young infant. So long as acidophilus occupies the field, the infant does not suffer from bowel troubles or indigestion and remains in good health. This is the reason that the mortality of breast-fed infants is only one-tenth that of the bottle-fed.

The ordinary diet eaten by older children and adults is not suited to encourage the growth of the acidophilus. As a result they are starved out and largely disappear. In many adults' stools very few are to be found. Such stools are highly offensive because of the dominance of putrefactive and other poison-forming bacteria. Meat greatly encourages the putrefactive germs and when freely used causes disappearance of the acidophilus. Sugar of milk is a special food which Nature provides for promoting the growth of the acidophilus. Certain other foods such as the tomato, tomato juice, the soy bean, soy milk, purée of very ripe banana, buttermilk and especially soy acidophilus milk prepared from the soy bean, Lacto-Dextrin, beta lactose (B-Lac) and Nuflora are foods which encourage the growth of acidophilus and enable it to run out putrefactive and other pernicious bacteria.

It is of the highest importance that every person suffering from colitis, constipation, indigestion and other forms of chronic disease should change the intestinal flora by increasing the activity of the bowels so that residues will not be retained long enough to undergo

putrefaction by avoiding the use of meats and other putrescible food-stuffs and the free use of foods which aid the development of the bacillus acidophilus, especially those named above. For rapid change of the intestinal flora it is necessary to flood the alimentary canal with soy acidophilus milk and to take with it some of the special foods which encourage the growth of the acidophilus, particularly lactose, beta lactose (B-Lac), Lacto-Dextrin or Nuflora.

For a very rapid change of the flora and especially in obstinate cases of constipation and colitis, the soy acidophilus milk should be employed daily by enema, one or two pints and two or three pints of hot water at such temperature as to make the mixture 105 degrees. Add a heaping tablespoonful of Lacto-Dextrin or one ounce of Nuflora and the juice of one or two lemons. If one enema does not completely empty the colon,a second should be given. After the colon has been emptied, it is a good plan to introduce a half pint of a mixture consisting of one half glass each of soy acidophilus milk and warm water with a half ounce (half glassful) of Nuflora. The Nuflora is especially useful in cases of colitis. It is an emollient which protects the mucous membrane and at the same time feeds the protective germ acidophilus and so changes the flora. It is the best remedy for gas as acidophilus does not make gas, but destroys the gas forming germs.

EXAMINATION OF THE STOOL

Examination of the stool is highly important. Many serious diseases have their origin in morbid conditions of the colon. Not only putrefactive and various other disease-producing germs are found in the colon, but amoebae of various sorts; but particularly the amoeba histolytica that causes tropical dysentery, tapeworms and other parasites are found.

In all cases it is necessary to know the percentage of the protective acidophilus which should be present to the extent of 75 to 95 per cent in order to insure protection of the intestinal tract. Examination of the stools is necessary not only in cases in which disease of the colon is suspected, but also all cases of chronic disease. In these cases putrefaction is a handicap which lowers vital resistance and imposes unnecessary work upon the liver and kidneys, lessens appetite and impairs nutrition. A change of flora is always necessary.

(Directions that are now on the can follow the preceding material)

For a special examination for acidophilus only a small sample of the stool is required. This may be obtained from the toilet after a bowel movement with a spoon and sent to the laboratory in a sputum bottle. The bottle should bear the name of the sender and date of the specimen.

When changing the flora the stool should be examined weekly, to determine the percentage of acidophilus present. Starting with 0 or 5%, by the end of the first week the count should show 30 to 40%. By the end of the second week the percent should be 45 to 60%; in another week 70%, then 75, 80, 85 and in time even 90 or 95%. Nursing infants often show a stool count of 90 to 100%.

Lecture in the Sanitarium Dining Room, August 3, 1936, 8:00 P. M.

By

John Harvey Kellogg, M. D.

I have observed a great many years that the curiosity of the Peripatetic valetudinarian is never fully satisfied. I remember one lady that was here a great many years ago. She spent a whole year with us. I called on her nearly every morning and there was never a morning I called that she did not serve up to me as a beautiful nosegay a new symptom. She seemed to be most prolific in symptoms. I despaired of curing them all, so I gave up trying to cure her symptoms and undertook to cure her and succeeded in getting her on her feet. She came from Philadelphia where she had been for several months under the care of the famous Dr. Weir Mitchel who had given her up as a hopeless case. I was happy to send her back to Chicago to her lawyer husband on her feet.

There are many people that are not half alive; in fact, Nicholas Murray Butler says that the average man dies at thirty and is buried at sixty.

The famous John Locke used to say, "While we are alive let us live." Now, that is one thing this institution is for, to show people how to live, to really be alive while they are living. There are so many people, as I said before, only half alive. The reason they are only half alive is because they are under the influence of drugs. I think probably at least 75 per cent, perhaps 90 per cent of all the people who come here are under the influence of drugs when they come. I see you look at one another suspiciously. Now, some patients are sometimes so saturated with these drugs that they are actually odoriferous. Halitosis I think they call it, don't they? The majority of these drugs

are manufactured in your own interiors. It is of the greatest importance to know how to stop this drug production.

I remember a lady from Toledo many years ago-- when I approached the lady in the examining room there was a strong sensation in my olfactory sense. I won't say what it was like, but certainly the bouquet was anything but pleasant. I said to the lady, "I see at once that you are suffering from autointoxication." She flew in a great rage, shook her fist right in my face and said, "You are entirely mistaken, Sir. You are entirely mistaken. I haven't had a drop since night before last. I admit I do usually take a toddy at night before I go to bed to help me sleep, but last night I was here and could not get any so I haven't had a drop since night before last."

"But," I said, "you are a bootlegger. You have a speak easy on the premises. You make your own poison, your own intoxicant." So I explained to her something about what autointoxication is and she felt a little bit more amiable toward me. I had some little trouble, however, in getting this lady to appreciate the importance of getting sweet and keeping sweet.

I was really surprised how few people there are who really understand what autointoxication means. I remember on one occasion I met the late Mr. Bryan, the great presidential candidate who never arrived. I noticed his breath was very bad, in fact, I met him on several occasions and noticed his breath was very bad. The last time I met him he was here but an hour. He stopped over to see me. I think I was negotiating with him for a lecture. He had to go to Kalamazoo to an engagement. It was when he was campaigning for the man who supplanted him and doing it in a very amiable sort of way, although his heart was not really in it. He was a very amiable man and doing a great deal of good. I wanted to do something for him and hardly knew how to get at it. He

had not applied to me for a study of his case. He had not asked me for any advice. How to volunteer advice about autointoxication and how to cure halitosis and so forth I really felt a little bit of embarrassment. I felt it so important he must know something about it, so I finally managed to smuggle in the word <u>autointoxication</u>. He caught on at once. "Autointoxication? What is that? Is that something people get from riding toofast in automobiles." "

"No," I said, "it is something different," and I explained to him what it is.

He said, "I thought it might be-- let me see, auto-- auto-intoxication. I thought it might be something we get from riding too rapidly or something of that kind."

Mr. Bryan was suffering from chronic intestinal poisoning and the average man or woman in America, in fact, in the whole civilized world is suffering from that very same thing, autointoxication.

As I look over this audience I feel sorry for a whole lot of you because you are being withered up and shriveled and deep marks are being made in your faces. Your upper lips are getting puckered and there are puckers around youreyes and your cheeks are dropping. Dear me, it is terrible what these poisons do to people. They shrivel up the body. They cause a decay and degeneration of the rubber like tissue. There is something in the skin that is like rubber, so when you pick up the skin it snaps down like a piece of rubber. I am going to ask you all to do it in a minute to see how it works. This tissue is what is called by the scientists yellow elastic tissue. It is the yellow elastic connective tissue. The body is held together by a framework of tissue of the same sort that is found in ligaments. That is the sort of tissue that the fishermen used to make strings out of, used to make lines out of, and the wild people who lived 20,000 years made thread

out of these fibers.

The yellow elastic tissue which is something like rubber differs from the kind that ligaments and tendons are formed of. They do not stretch, but the yellow kind stretches like rubber. We have some of it in the back of the neck. A cow has a big lump of it almost as big as your arm. That is why a cow can hold its head out straight without getting tired. It is held up by rubber like elastic tissue like a spring. When a cow puts her head down to the grass she has to push it down, so it is not difficult for a cow to hold her head out straight. I used to feel sorry for the cow because I thought it got very tired from holding its head up. We have the same thing in the back of the neck only on a small scale. The kangaroo has a long piece in his tail. That is why he can jump so well. He touches his spring and it throws him into the air.

We have the same tissue all through the skin and all through the body and around the blood vessels. It gives the body the ability to stretch and yield and holds it in form. If it was not for this yellow elastic tissue a person might gain and his body would stretch, but when he came to lose a few pounds the skin would be hanging in folds. That does sometimes happen. I remember a patient some years ago arrived here who had been over fat, had an enormous excrescence in front, and the fat had all disappeared. He had lost 40 or 50 pounds and here was a great fold of skin that hung clear down to the knees, a double fold. It formerly had been filled with fat. The only remedy was to cut off this fold. I have sometimes had to do the operation, cutting off 15 or 20 pounds in people who are enormously fat. If a person did not have this elasticity of the skin, when a person lost a few pounds the skin would be lying lose in folds, and that is what happens in elderly people.

Sometimes you see people with a big fold under the chin. It is not a double chin, but loose tissue lying here, and you see the same thing in the arms and various parts of the body because the skin has lost its elasticity.

The skin is an elastic covering of the body. As one advances in age this elastic tissue disappears. One may advance in age without getting old. One may grow in years without being old. A Frenchman once said, "A man is as old as his arteries." Why? Because the walls of the arteries are made up of this same kind of tissue. When the pulse comes racing along, the arteries stretch and then go back again to their normal size. So long as this elastic tissue exists in abundance this goes on continually and the arteries maintain their normal function, but when these poisons accumulate in the body, when more of these poisons are absorbed from the colon than the body is able to take care of, to destroy in the liver or to carry off through the kidneys, then they accumulate and the blood circulated through the body sets up degenerative processes which cause this elastic tissue to disappear and then the cheeks begin to drop.

Won't you make a little self-examination? It would be better if each one would examine his neighbor. Take hold of the skin like this and pick it up and hold it. Put the fingers straight out like that. Now take hold of the skin here and lift it up and then let go to see what happens. You notice perhaps that the skin goes down but goes down a little slow. It takes a little time to go down. When I was a boy it snapped right down at once and tomorrow morning it would do it very rapidly. I have been working hard all day and part of the night, in fact, and so it does not go so fast. In a young person it will always snap.

An Englishman made a very wise suggestion. "A man is as old as his skin," and that is perhaps just as true as it is with reference to the arteries. I may also say that a man is as old as his heart because when

a man's heart wears out he is likely to collapse all of a sudden. A man is as old as his kidneys because when the kidneys fail a man is old. That is why some of you are getting wrinkles on your face. The skin loses its elasticity. The kidneys have had more work to do in carrying off poisons than they can do and so they have accumulated in the blood and set up this degenerative process. What is the cause of this? The residue of the food and refuse lie in the body so long that they undergo putrefaction and this putrefactive process poisons the whole body. That is what makes the bad breath because the blood is saturated and the poison comes out through the lungs. That is the real cause of halitosis. Sometimes it may be due to a decayed condition of the teeth, but very rarely because the eating of food and the drinking of water will wash the teeth. But when you have a large accumulation of filth in the colon and this is continually being absorbed into the body that saturates the whole body so it is not the breath that smells bad, it the man that smells bad. It is the person and this flavor that you have in the breath is also in the brain and in the muscles.

Animals often have it. Old dogs always suffer from autointoxication. A puppy is sweet. A small puppy is as sweet as a baby and you would not mind holding him in your lap, but when he gets 10 or 12 or 14 years old and walks through the house he leaves a doggy smell behind for some little time. He has a very strong aroma. That is due to autointoxication. The dog has halitosis.

I met a butcher 15 or 20 years ago who had quite a large butcher shop and asked him for a piece of pig's liver. I wanted a piece of pig's liver because it is like the human liver and it is very good for medical students to study. I had a number of medical students. I think I had 25 or 30 medical students in those days and I wanted something to demonstrate under the microscope what liver looks like. It is a very

interesting organ. The cells are hexagonal like the cells of a honey comb. They are among the most wonderful cells in the whole body. The liver does more different kinds of work than any other organ in the body and yet the cells are all alike, apparently, yet they do a dozen different things. The liver is a sort of man of all work for the body. I will tell you next time something about the liver. It is a wonderfully interesting organ.

I wanted to get this hog's liver to exhibit to my students. The man said, "I haven't any. I don't sell hog's liver."

I said, "Why not?"

"Why," he said, "it is very rare to find a hog's liver that has not an abscess in it."

Why? Because they eat such filthy things. I said, "You know some people actually feed dead horses to hogs.

He said, "I don't allow such pork in my shop. I never allow it to come into my shop.

"How do you tell it?"

"I can always tell it by the smell."

When a hog eats meat the same thing happens to the hog that happens to a man when he eats meat. Some portion of the dead animal like a cow, calf, sheep or some other animal lies in the body undigested. One-sixth of all the meat we eat is undigested and it lies in the colon and decays. Sometimes it lies there for some days. The average person whose bowels move once a day retains these residues for more than two days.

You ask me how we know that. It is very easy to find out. You can find out for yourself. Perhaps many of your have taken the carmine test. Let me ask Is there anybody here who has not had the carmine test, two little red capsules? If anybody has not had that test put up your hand and I will see that you get it. You swallow two little red capsules

that will color the residues red. If you watch for it you will see it will continue to appear and after a while it will disappear and the time when it disappears indicates the length of time ~~the length of time~~ the breakfast has remained in the body, that is, the length of time it has taken to pass through the body. This test has been applied to hundreds of people and has shown that for the average man whose bowels move once a day the refuse remains in his body over two days, from 53 to 54 or 55 hours. Now, 48 hours would be two days, so you see that is five or six hours more than two days. If you take the test meal this morning, take those red capsules this morning, then from tomorrow morning to the next morning makes two days and it is after dinner before that residue has entirely disappeared. During that time it is undergoing the same kind of change that it would undergo anywhere else.

Suppose you put a piece of mutton or fish or dead rat or anything of that kind in your pocket and carry it around for a couple of days. Just like as not you would be arrested as a public nuisance. Certainly the city scavenger would chase you up. The same thing happens if it is in your colon as in your pocket.

I remember a man from Chicago who was here many years ago. I was talking to him about autointoxication. He did not take a bit of stock in it. He said, "I talked to my doctor about that and my doctor said it was all bosh." I am sorry to say a good many doctors have that idea. Those doctors have mostly lost the sense of smell through the use of tobacco. They do not know much about it. They have forgotten about it. I had to give this man a very serious lesson. I almost made him sick. I was talking to him about what we were going to feed him, vegetables, fruits and cereals.

He said, "I don't like those things. I don't like fruit." He

never ate fruit in his life. He was not in the habit of eating fruit.

I said, "How about fresh vegetables?"

"I don't eat fresh vegetables. That is rubbish and I don't eat it."

"Cereals and breakfast foods?"

"I can't endure them. They are too mushy like. I don't like them."

I said, "What do you eat?"

"I eat meat. I don't eat anything but meat. I eat pork and sliced ham for breakfast and then for dinner I have roast beef, fish and mutton, two or three different kinds of meat, and for supper I have oysters usually or shellfish of some kind."

He ate at least half a dozen different animals every day. I asked him what his last meal consisted of and he told me. I said, "You have a whole menagerie down there," he had such a collection of beasts of various kinds. They were all represented there and in an advanced state of decay. Regular Potter's field down there.

Charles Lamb wrote an essay on roast pork. He said, "Of course I must admit it is very hard on the pig, but then he has a compensation in the fact that he has such a fine sepulcher." That is where I got that idea. It is a classical idea, you see. You must not think I am rude in mentioning such things.

I suggested to this gentleman he had a menagerie of dead animals down in his interior. So I asked him another question. I said, "How about the evacuations?"

"Awful, Doctor. Awful, Doctor; I have to get away from the place just as fast as I can. It is perfectly terrible."

I said, "Suppose by some accident the evacuation occurred in this room or in your office, for example. What would happen if you had to stay there?"

He said, "I would have a terrible headache."

I said, "What would happen to you then is in your body instead of in your office. Now, I would like to have you think what would happen to you if that filth was put back into your body."

"It would kill me, wouldn't it?"

"Well, it would do you just as much harm before it left your body as it would do if it was put back again."

Then he began to wake up.

Nobody can deny that. The filth that leaves the body in the evacuations of the bowels is doing the body just as much harm as before it has left the body as it would do if it was put back. No different. It is the same thing.

In the case of a gentleman examined here yesterday we found that his motility-- that is a more pleasant word to use, so we call it motility, which means the length of time it takes for a morsel of food to pass through the whole length of the alimentary canal, the length of time for the red color of the capsule to entirely disappear-- the last time it is seen from the time it is eaten, that is the motility period. This man's motility period was 70 hours. You say, "That can not be in my case because my bowels move several times a day."

That recalls the case of a man from New York, a merchant. I asked him about his bowels.

"Now, Doctor, that is one thing I want you to let alone. I don't want you to pay any attention to my bowels at all because they move 10 to 14 times a day. I am a merchant in business and you can readily see if it should be disturbed and increased any more I would have to retire from business."

"Well," I said, "We will investigate the matter."

"Now, I don't want you to pay any attention at all to my bowels because I am afraid you would increase their activity in some way."

I said, "We will have to investigate it, but we will agree not to increase their activity."

So we gave him a test and found although he had 10 to 14 bowel movements every single day, the length of time required for the red capsule to disappear entirely was 96 hours, four days, and his bowels moved in that four days 40 or 50 times and yet that material was retained there undergoing putrefaction. What is the trouble? His colon was full and there was simply an overflow. There was just a little overflow and his colon was never evacuated entirely at all. As material came in at one end a little was pushed out the other end like pushing something through a sausage. It was the same thing exactly. His colon was practically dead. It did not act at all. Material was simply pushed through by pressure in a mechanical way.

I am glad to say this man after he had been here a week his bowels were only moving four times a day and he left us with normal evacuation after each meal.

When the colon is filled with putrefying material it is paralyzed. This putrefying material has ammonia in it. It is alkaline material and alkalies of any kind will paralyze the bowel. Acids stimulate the bowel. Every physiology teacher teaches that. Acids excite peristaltic activity. That is the reason why acid fruits are stimulating to the bowel, whereas alkalies paralyze the bowel. Fifty years ago doctors taught alkalies produced the opposite effect, acids stimulated activity downward and alkalies caused activity upward in the reverse direction. Now we know they simply paralyze the bowel. That is what is sometimes called atonic constipation.

Metchnikoff discovered that 50 years ago. He discovered that colon

germs are the cause of old age, and the most important thing, my friends, any of you can do while you are here, the most important thing of all you can accomplish here is to get your interiors in a wholesome state. Stop this intestinal putrefaction. It is easy to do it. It is very easy to stop it.

Two years ago next month I saw a notice in the paper that little Marie of the quintuplets had bowel trouble, so I knew if little Marie had bowel trouble all the rest would have bowel trouble. I knew something more than that. I knew Dr. Dafoe and the nurses taking care of the quintuplets were worried to death to know what to do for those infants because they kept them from birth caged up behind glass. Even there little cribs were covered with glass so they should not come in contact with any bad germs. They kept everybody away from them. Dr. Dafoe himself and the nurses wore masks. These babies were protected in every possible way and they were fed breast milk from the fourth day. They were four months old then and had had nothing but breast milk. They had the best food they could possibly have and yet they had bowel trouble. The doctors and nurses were doing all they knew how to do. What else could they do? When a baby has bowel trouble a wet nurse is secured and the baby is given mother's milk. These babies had that from the very start. Why did they have bowel trouble? I suspected they did not know what the trouble was because that is something I have been investigating for many years and found out the cause. So I wired the Doctor. I said to him, "I am sending you something for the bowel trouble that will cure them. I am sending you something for the quintuplets' bowel troubles that will cure them." So I sent them four ounces of soy acidophilus milk that you get at the table here. That was enough to give each one a teaspoonful each time it was fed. I wrote the Doctor about it. I told the Doctor how when a baby is born its body

is free from germs, but in 24 hours it is swarming with germs that get in from the air and water, so its interior is swarming with bacteria. When the baby begins to nurse then these germs begin to disappear and a new germs puts in an appearance, a new germ, a germ that is assigned one of the most important duties of anything on the face of this globe. It is just a very short rod. It is only a thousandth part of a millimeter. A millimeter is a 25th of an inch. It is a very small thing. It is a fungus which belongs to a great family of fungi or rather bacteria which is the lowest order of living things. This little germ makes its appearance within a few days after the baby begins to nurse. It gets the germ from its mother, so I call it mother germ. The mother germs are almost as necessary as mother's milk because without the mother's germ these unfriendly germs swarming in the body thrive. The baby gets the mother germ and along with it gets the lactose, the sugar of milk. The sugar is in mother's milk and it is found nowhere else in the world than milk. This sugar of milk is found nowhere but milk and chemists can not make it. It is a wonderful creation and it is created for the purpose of saving babies' lives. Every little animal that nurses its mother when it is an infant that creature gets this germ from its mother.

I knew these babies had never had contact with their mother. They were taken away from their mother when they were a day or two old. Their mother was ill. They never had contact with their mother. They never got the mother germs. I knew what was the matter.

The soy acidophilus milk that you get at the table is made from the germ known as acidophilus. Acidophilus is this mother germ. It is isolated in the laboratory. It is a buttermilk germ. It is a germ similar to the germ found in ordinary buttermilk. It looks like it under the microscope. It has the same form as the Bulgarian buttermilk germ. There

are different kinds of buttermilk germs that have a different appearance. This looks like the Bulgarian germ, but there is this very important difference. This germ can live in the animal body, whereas the Bulgarian germ and all other kinds of buttermilk germs can not live in the body. It makes lactic acid and that lactic acid prevents decay. If you put a beefsteak that has a taint about it in a pan of buttermilk it becomes sweet and all the taint disappears. It ceases to decay and it becomes entirely free from all evidence of decay and after a few weeks you can not find a single germ of decay.

I kept a beefsteak in buttermilk for 17 years. I have a beefsteak now which has been there for 12 years, so you see that is a good way to keep meat if you have meat around the house and I hope you won't. But if you have any and it seems to be getting rather stale or old put it in buttermilk and by and by throw it out and bury it in the garden. Dead animals should be buried like dead people.

Well, I got a letter from Dr. Dafoe pretty soon. I wrote that I was going to keep on sending the buttermilk until I heard from him that he did not want it. He wrote me and hoped I would continue sending it because the babies were well and they have been kept well ever since. I saw by a recent announcement in the paper that every one of those little quintuplets takes 20 ounces of soy acidophilus buttermilk every day. The paper did not say soy acidophilus buttermilk but said acidophilus only. The Doctor writes me often and sends me little tin boxes of specimens and the babies have their acidophilus up to 75 and even 85 per cent. The first specimen sent was only 20 and they were awfully offensive. In one of the little boxes gases accumulated to such an extent the cover when loosened a little blew off with an explosion and they all had to flee out of doors. It was something terrible. When the little one was in that state with those horrible germs producing those terrible

poisons no wonder it was sick. The Doctor tells me when he stops the use of soy acidophilus the stools get bad and the babies do not do well.

I feel happy to have had the honor of keeping those little folks alive. Half of them would be dead, perhaps all of them would be dead if they had not had soy acidophilus.

These germs have the same potency in combating old age that they have in combating bowel trouble because the same kind of poison that destroys the elasticity of the skin makes the face drop, leads to wrinkles and leads to dilatation of the arteries. You sometimes see it on the temple. It looks as crooked as a ram's horn.

I only make these remarks because I want you while you are here to improve your opportunity. Soy acidophilus is not unpleasant to take. It has a slight garden flavor. Ordinary cow's milk has the barn flavor, but the soy acidophilus buttermilk has a garden flavor. One needs to get used to it. You can get the barn flavor by adding a little cream to the acidophilus milk. We have also acidophilus milk made from cow's milk and that is useful although it is nothing like as potent as soy acidophilus milk.

One time Dr. Dafoe complained ~~complained~~ the babies did not like soy acidophilus milk. I said, "Then try cow's milk," but he soon came back to the soy milk . I am speaking now of cow acidophilus milk that is sold in some cities. The trouble is there are not very many germs there and sometimes none at all and it is not so vigorous a germ. While you are here you can get accustomed to it. If your doctor has forbidden you to take milk it will be just the thing for you because people who can not take cow's milk can take soy milk without any trouble at all. It is more digestible than cow's milk. The doctors are very busy and may forget to tell you the story I have told you. While you are here you have an opportunity to get great

benefit. In a week's time the odors will perhaps be almost entirely gone and in three weeks the unpleasant odors will be gone. If you have a bad breath it will disappear. If you have a tired feeling in the morning it will disappear,if you wake up in the morning feeling tired when you ought to be fresh it will disappear. That tired feeling is due to poisons absorbed, to these colon poisons absorbed while you are asleep, and the reason why you feel more tired in the morning is because when you are lying still at night the kidneys are less active and the poisons accumulate in the body. Toward night after you have been moving about and drinking water and rinsing the blood out, you get rid of some of the poisons.

While you are here improve the opportunity to get your flora changed. That is the most important thing.

I remember a time many years ago when I did not dare show my tongue. I looked at it every morning and scrubbed it off and did the best I could. I knew I had a taint in my breath and took care to keep my face turned away from my patients. I did my best to prevent it. I stopped eating meat 70 years ago, so I could not reform in that respect. The fact is if you have a bad breath you have autointoxication no matter whether you eat meat or you do not. Irrespective of what your food is you have autointoxication if you have constipation. You have halitosis if you have inactive bowels because the natural secretions of the body accumulate in the body and undergo putrefaction. They are animal products and they will putrefy if they remain a long time in one place.

The friendly protective germs have to have carbohydrates. They have to have sugar or starch to feed them and these carbohydrates are always absorbed. If there is a little delay they are absorbed, but the protein which undergoes putrefaction remains behind and so you always

have autointoxication if you have stasis or stagnation and if you do not have proper activity of the bowels.

QUESTION: Do you believe in allergy? There seems to be a difference of opinion. What do you think?

ANSWER: Allergy closely resembles poisoning, in fact, it is a state of poisoning. I remember one of the first cases brought to my notice, I recognized it as a case of allergy. It was the case of a baby. The mother weaned the baby and put the baby on a bottle and the baby in a very short time had a spasm and in a few hours became unconscious and went into a state of coma and died. It was a case of allergy from the use of cow's milk.

I noticed some years ago a case reported in one of my French journals in which a baby was weaned and was found to be allergic. It took cow's milk, went into a spasm and died. I should not say died. It was changed back then to mother's milk and was allergic to mother's milk. That was a very unusual case. In such a case soy bean milk or milk prepared from almonds would save the baby's life.

Allergy is sometimes observed in relation to strawberries. A person eats strawberries and has a breaking out, has nettle rash. A person eats oysters and has a similar attack. I remember a lady who came here some years ago who had eaten lobster. Her eyes were swollen shut and she had enormous blotches all over her body. Every different food may produce these results in some individual person. It is the protein in the food that does it. There is no question about it. It is not a matter of believe, it is a matter of fact.

QUESTION: What do you think of Fleischmann's yeast?

ANSWER: Well, I have not been thinking very much about Fleischmann's yeast? A Fleischmann representative called on me some

time ago and he wanted to make arrangements to supply us with yeast, so I asked him a question about it and I discovered that this Fleischmann yeast-- I took some of it and tested it and found it had very little efficiency. This is bread yeast. It is a yeast used for raising bread. That kind of yeast has very little value as a therapeutic agent. The substances which are produced in yeast are known as hormones. They are not present in ordinary yeast to any great extent, the yeast used for raising bread, but they are found in brewer's yeast. That kind of yeast is very rich in vitamin B. The vitamins found in yeast are of very great value. The brewer's yeast is washed so that all the alcohol is removed and the flavor of the yeast and an extract is prepared and that is what you get on the table under the name Savita. The soups and broths are made from Savita. It is several times as potent as Fleischmann's yeast.

Fleischmann went out of business, I understand. They are not selling yeast any more. The cost of advertising to keep up the sale was so great it was very difficult to make the business pay. You have doubtless noticed very frequently the pictures of certain great medical men living in Germany who recommended Fleischmann's yeast. Americans would not allow their names to be used in that way.

I have no prejudice against Fleischmann's yeast. It is good as far as it goes, but you have to take several cakes of yeast to equal a teaspoonful of Savita or a cupful of Savita broth.

QUESTION: What is the best treatment for spastic colon?

ANSWER: There are several things to do for a spastic colon. The most important thing is to change the flora. This change of flora, getting rid of the poisons, the germs that produce infection, that is the most important thing you can do. It should be taken by mouth, a

quart of soy acidophilus milk a day, and it should also be taken by enema, a pint or a quart every night. It is surprising how rapidly this will often cure a spastic colon. I knew a man who suffered from a spastic colon and colitis for 50 years. The colon had been contracted nearly the whole length of it. It was shut up almost completely and almost impossible to secure any evacuation at all. In six weeks this man's bowels were moving in a natural way. I got a report from the patient two or three days ago. The bowels were moving two or three times a day . He had depended entirely upon enemas for more than 20 years.

QUESTION: I have brittle fingernails. Is this caused by a deficiency in the diet?

ANSWER: The fingernails have really some significance in relation to health. There is no doubt about it. This is also true of the hair. If you pull out a hair and examine it, especially with a magnifying glass, you see it differs in thickness. In some places it is thin and in others it is flat and it varies in shape. If you draw that hair, take it between the fingers in this way you see it move because the hair is made up of little scales that point in this direction. When you rub it in this way it moves in one direction and won't move in the other. Turn it around and it moves in the opposite direction. If you examine it under the microscope you see these scales are in some places irregular. They are not arranged in a regular manner. This thin hair means that your vitality was for some reason low at that particular time. Assimilation was not going on well. You have, in fact, in the hair a history of your physical condition during a period of several weeks or months.

The same thing is true of the fingernails. Any disturbance of nutrition makes its mark on the fingernails. Thick, tough nails are a

very good indication just as thick, coarse hair is a good indication. A wild Indian's hair is almost like horsehair. The hair of a sturdy country boy is likely to be thick. I am glad to remember when my hair was so stiff it stood up like bristles. I could not make it lie down or part it. A barber remarked to me the other day that my hair is soft and silky. I was very sorry to hear that because I know what that means. I told him I was sorry my hair is thin and silky. It ought to be coarse and sturdy and vigorous and tough. The same thing is true of the fingernails.

QUESTION: A person who has passed several bladder stones in the past, but is now free from them. Is there likelihood of there being trouble with them again.

ANSWER: Yes, there is great likelihood. These bladder stones begin in the kidney as small stones and go down into the bladder and layers accumulate on the outside and it grows like a snowball going down hill until it gets to be a large stone. These stones are somehow associated with vitamin A. Vitamin A is the vitamin found in butter, cream, carrots and all kinds of green things. It is a very important vitamin. It is found along with vitamin D in cod liver oil and it is also found in the yolksof eggs. The yolks of eggs contain half as much vitamin A as cod liver oil. That is a good thing to remember. You will find it much more agreeable to take the yolks of hard boiled eggs than cod liver oil. The yolk of an egg weighs half an ounce, so the yolk of an egg is equal to two teaspoonfuls of cod liver oil. It is a good thing to remember that. And the yolk of egg contains other very important vitamins besides vitamin A. It also contains valuable food minerals and iron and lime and lecithin which is also of very great importance for blood building.

A Japanense investigator, a bacteriologist, made an interesting

discovery. He discovered he could produce gallstones and bladder stones and kidney stones by depriving animals of vitamin A and then he could cause the disappearance of these stones by feeding the animals large quantities of vitamin A. So if a person has a tendency to the formation of calculi of any kind, the thing to do is to take a large amount of vitamin A, and you will find it, as I said before, in green things, in carrots, in the yolks of eggs, and of course you will find it in cod liver oil. Cod liver oil is not altogether agreeable for most people. Certainly good wholesome food is better.

QUESTION: Can arteriosclerosis be arrested?

ANSWER: Yes. An eminent German heart specialist, Dr. Plesch, says that it may be cured and cites several cases of advanced arteriosclerosis that he claims were cured. It seems almost incredible this should be true. I would not dare claim it, but certainly we can stop the process of arteriosclerosis. That is a hardening process due to the loss of this elastic element I have been telling you about that we see in the skin. If you restore the elasticity of the skin, get rid of the poisons that produce this condition and build up the body, increasing the general vitality, we will aid Nature in her work of endeavoring to rescue the person from this degenerative process.

Dr. Plesch finds that the proper remedies for arteriosclerosis to live out of doors, fresh air, gentle exercise, plenty of water drinking and a vegetarian diet, which is recognized by all as very important because it suppresses the formation of poisons. Meat putrefies while bread does not putrefy.

One of the best things to prevent this condition of arteriosclerosis is the free use of bananas. That is of very great importance. The banana may be put through a colander. It must always be a ripe banana with brown skin. Cut the banana in slices in a tumbler and take a fork and beat it

in this way. In a short time you will find it has become liquid and you can turn it from one glass to another. In this form it is one of the most digestible of all foods. Bananas that are not quite ripe are very indigestible and even ripe bananas swallowed in chunks are hard for the stomach to deal with for the reason that the stomach can not digest it. There is nothing in the banana or very little that the gastric juice can act upon and so it should be broken up in liquid form so it can be passed out of the stomach where other digestive juices can deal with it.

QUESTION: Is diabetes curable?

ANSWER: Taken in the incipient stage the disease can usually be cured, but if it is far advanced it can not be cured entirely but it can be controlled. Insulin does not cure it; it only relieves the symptom. I might mention, however, that a flesh diet is not wholesome for diabetics. It is very bad because it increases constipation and putrefaction and the putrefaction is one of the things that wears out the pancreas and destroys the ability of the body to utilize sugar.

QUESTION: What is the cause of dizziness?

ANSWER: Dizziness is due to various things. It may be due to tumors in the brain, but that is very rare. It is more likely to be due to a disturbed stomach or poisons absorbed from the lower intestine.

QUESTION: I have had iritis for eight years and can not find out the cause. What produces this trouble?

ANSWER: A common cause of iritis is this very miserable colon trouble we have been talking about. That is one of the most common causes. I met a case of this sort not very long ago and a cure will not be accomplished until the colon is taken care of.

QUESTION: After a colonic irrigation why is there often colic pain?

ANSWER: Colic pains are ue to the fact that the colon has

been stimulated to activity. In such a case there should be a hot application.

I did not tell you all the things that are done for colitis by any means. One of the most important things to leave out of the diet is all kinds of putrefactive foodstuffs and another thing is to keep the colon thoroughly emptied and to take enemas of soy acidophilus milk which will introduce the protective germ into the colon and in that way destroy and wipe out the unfriendly ones.

QUESTION: Do you believe in high injections?

ANSWER: There is no such thing as high injections. Water is introduced into the colon and the colon is a tube and the water runs in and fills it up. If you undertake to put long tubes in they simply curl up; they do not go higher than the rectum. I will show you why. It is impossible for them to go very high in the colon. Suppose we have here the colon. Here is a point where the colon and the rectum join and here are some little folds that come out into the rectum here. Now if a tube is introduced here the first thing this tube does is to run right up against this membrane here and then it is diverted over there to that corner and if it possibly got by this point it would strike another kink here and if it should possibly get by that it would strike a constriction there. Here is the rectum and heres is where it joins the large bowel. There are little folds in here known as Houston's valve and when a tube is introduced it runs up here and runs against this valve and that makes an obstruction, and from here it might come over there and finally it reaches up there and it can not go any further, so the tube simply coils up like that. We have made a study here in our X-ray department of a hundred thousand cases and in every single one of them the tube folded up like that. After taking a barium meal and the barium taken by mouth has passed through then the enema is administered

to see whether there is any obstruction in the lower part of the bowel. This enema has been given in this way, introduced into the rectum and passes through the bowel clear over to the cecum, and this has been done in more than 75,000 cases and it never fails. The enema never fails to go clear over and come out unless there is an obstruction , but it is very rare. It is usually a cancer or tumor or something of that kind, but that is very uncommon.

October 4, 1937

A CHAT ABOUT HEALTH FOODS

I had a chat the other day with a neighbor of mine just back from a month's stay at the Battle Creek Sanitarium where he went to get back some of the pep he had lost during the depression. I was glad of a chance to get some information about the health foods they make there, so I said to my neighbor, "Won't you tell me something about the Sanitarium health foods? Are they really health foods or just some other products made to sell?"

"They are the real thing all right," said my friend, and his face fairly beamed while he gave me a most enthusiastic account of what Battle Creek health foods had done for him.

"Why," said he, "there is Lacto-Dextrin, which is a pure food. It has not a particle of medicine in it, but it is wonderful for stomach trouble. Ihad a stomach ulcer that had bothered me for years. No matter what I ate, after about three hours I felt as though there were a rat gnawing at the pit of my stomach. Itried everything and nothing gave me more than very temporary relief. Ifinally decided to submit to an operation. The doctors refused to operate because my heart had become affected and they were afraid Icould not stand the anesthetic. They advised me to take soda and live on a liquid diet and make the best of it. But the soda upset my stomach and I would not digest enough to keep me going.

"Finally a doctor advised me to try Battle Creek. The doctors there gave me Lacto-Dextrin. The first dose stopped

the pain and after I began taking it regularly in liberal doses the pain disappeared, and after adhering to a smooth liquid diet and taking soft lubricating bulkage for my bowels for five or six weeks, the Doctor gave me an X-ray examination and told me he believed my ulcer was cured. I have not had a bit of trouble since, but of course I am careful about my diet. I take care to avoid overeating and carefully follow the diet list the Doctor gave me since I came home.

"Since I came home I have met several persons who were suffering from what the doctor called peptic ulcer of the stomach of duodenum and have told them of my experience and they have got a supply of Lacto-Dextrin and Kaba from the drug stores and food stores where it is sold and have gotten well without going to Battle Creek. Of course there must be cases of ulcer that have reached such an advanced stage that they require an operation. Every case should be under the care of an experienced physician. I know, in fact, of several physicians who are using Lacto-Dextrin for the treatment of ulcer, gastric acidity, biliousness, coated tongue, colitis, constipation, foul stools, bad breath and skin troubles and with excellent results."

With either hot or cold water Lacto-Dextrin makes a delightful beverage. The original product, the formula of which was made by a well known physician who will not permit his name to be published, has been widely imitated but never duplicated. The original is prepared only be the Battle Creek Food Company. Care shoul be taken to note that the original bears the name Lacto-Dextrin and is endorsed by the Battle Creek Sanitarium. It is necessary to warn the public that there are several cheap

imitations now being offered th public with names very similar and which resemble the original in appearance.

* Dr. Eggleston, who I think has saved more people from the operating table than almost any other man I know of through his skill as a gastric specialist.

Dr. Martin, who numbers among his several specialties that of an expert joy maker and I suspect enjoys more personal friends in the profession and out of it than several of the rest of us put together.

10-21-36

To My Fellow Citizens, Friends and Colleagues:

In leaving Battle Creek for my enforced winter sojourn in the South, I feel more keenly than ever before how much both myself personally and the Sanitarium are indebted to the fostering friendship of the citizens of Battle Creek and I wish every citizen to know that it is with deep regret that I am compelled to leave this beautiful city which is rarely equalled for its salubrity, its orderliness and the possession of the qualities necessary to make the city a desirable place to live in. I particularly appreciate the friendly attitude of our excellent city papers and the Chamber of Commerce and the physicians and other professional men and wish to make it clear to our citizens that I make no claim to any great achievement that has put my fellow citizens under any sort of obligations to me. Whatever success has been attained by the Battle Creek Sanitarium or whatever benefits the city has derived from the work of the institution must be attributed to its ideals and not to the management; and if the institution succeeded, this, too, is wholly the result of the ideals which it represents and the teamwork of the men and women who compose the organization.

Particularly I appreciate the support which I have received from my many colleagues, especially those who have given 25 or 30, some even 40, and in the case of Dr. Riley, more than 50 years to the work, and especially during the early history of the organization, in a most self-sacrificing way. I ought particularly to mention such men as Dr. Riley whose work in his specialty, nervous diseases, has made him internationally known; and Dr. Mortensen whose excellent work as a heart specialist I heard spoken of by eminent specialists in Vienna at the time of my last visit there.

For more than 40 years Dr. Charles E. Stewart has devoted his life

to the promotion of the Sanitarium interests and as Receiver of the institution has helped to operate it successfully through some of the most trying experiences of its long career.

Dr. Ben Colver, who on the death of Dr. John Byington, one of our most promisinng specialists, fitted himself to take his place and attained distinction in his specialty not only by his expert execution of highly technical surgical work, but by devising new operations which mark a distinct forward step in the progress of nose surgery. He is now with us again to the great satisfaction of old patients who enjoyed the benefit of his services.

Dr. R. H. Harris, who as a student distinguished himself in passing the rigorous examinations of the Edinburgh medical faculty and became a Fellow of the Royal College of Surgeons the first time trying, a very unusual achievement, after a few years' absence is now again with us to the great satisfaction of many of our old fellow citizens as well as a multitude of new ones.

Dr. Paul Roth, our able physiologist, has made through his skill and ingenuity notable contributions to medical progress which have come into universal use by leading medical men not only in this country but abroad.

Dr. Boldyreff, head of our Pavlov Experimental Laboratory, for many years executive head of the famous laboratory of the world's foremost physiologist, Prof. Ivan Pavlov of Leningrad, Russia, brought to the institution a share of the great renown which his vast researches have won and which have put his name in every medical text book which deals with the physiology of digestion and the nervous system.

Dr. C. V. Radabaugh, now our senior woman physician, hassuccessfully won a following which rivals that of any of our men physicians by her thorough knowledge of and loyalty to the ideals and characteristic

features of our Sanitarium work.

In length of service, however, no one rivals Mrs. Mary S. Foy, for so many years head of our Nurses Department and for two generations recognized as leader in the physiotherapy type of medical and surgical nursing for which Mrs. Foy has won recognition by able and tactful management.

In the Business Department Mr. George E. Judd takes precedence for able and long time service.

Among those who have passed on Mr. M. W. Wentworth will always be remembered for his many brilliant qualities as a leader.

that the time had come when the world was ready for a new development in curative methods. I cannot take credit for conceiving and carrying to completion a great project. I saw only the beginning of a new idea, was put on board, so to speak, and have come along with it and watched its development.

I must not neglect also to mention our charming hostess, Miss Leta Browning, who renders material service in creating a cheerful, optimistic atmosphere which makes every one immediately feel at home and helps to bring them back the next season; Miss Zahn, who has for so many years presided in the Receiving Department and whose remarkable memory rarely fails to recognize at once each one of the thousands of former patients who return every summer for a Battle Creek outing; Mrs. Montgomery, the genial and highly efficient head of our dining room service, equally remarkable for her quick recognition of returning patients and her ability to make them feel at home.

In the educational department, represented by Battle Creek College, Dr. Leffler's fine leadership and able administration, with the able support of Dr. West, who has made the Department of Biology a drawing feature of the College; and Miss Ritchie, able successor of Miss Cooper, whose capable service in building up the School of Home Economics, led the government to place her in charge of the dietetic department of the army hospitals during the war and to send a group of its ablest experts in the ambulance department to study our methods and to take special course of training; Dr. Porter from Stanford University and the University of Chicago where she held enviable positions as a faculty member, but prefers Battle Creek because of her interest in the ideals and principles of the Sanitarium and the College and appreciates the high

quality of the community life of our splendid city.

Mr. Sparks has been the leader in the physical education department of the Sanitarium, and Miss Mosener is equally capable as head of the department of corrective gymnastics for women; house manager Aagaard, a natural born boniface, and scores of others equally loyal and capable, each in his own place.

Among those who have passed on and will always be remembered should be mentioned Dr. Gertrude Johnson, Miss Margaret Hall, universally loved Willie Drever, good Elder Tenney, our beloved pastor for many years, and our able Dr. Stegman who attained high honors in her profession as an eye specialist, and Dr. Lindsey, one of the chief founders of our training school. All these and many others through their loyal service and fine personalities have made the Battle Creek Sanitarium what it is and have helped to lay the foundations on which will stand its future development as an agency for the promotion of human welfare.

I might justly mention among others who by years of loyal service have helped the work forward in our food laboratories, the Good Health Publishing Company and in other capacities, my good friend Henry L. Stegman, a staunch supporter of our ideals and an able contributor to our literature who joined us first as a patient after many years of arduous work as city editor of the New York Herald. I venture also to mention Mr. Jack Haas who recently joined our army of workers as managing head of the Battle Creek Food Company which for many years under my personal supervision has always been regarded by me as an accessory branch of the Sanitarium work. Mr. Haas brings to the Food Company the fruits of many years' experience as head of a large automobile business and more than 20 years' experience as salesman and manager.

I should also mention Drs. Jeffrey and Norman, my chief lieutenants

in the building up, development and management of a sanitarium of like character with the Battle Creek Sanitarium at Miami, Florida.

Nothing of even very ordinary moment could ever have been accomplished here without the teamwork which has been carried on by the leaders whose names I have mentioned and ten thousand others whom memory fails to recall and limited space does not permit to mention.

I must not forget to record my indebtedness to a very remarkable man, a natural born leader of men, James White, a descendant from the first white child born in the colony planted by the Mayflower Pilgrims. A movement started by him through an impulse received from the works of Sylvester Graham, the originator of graham bread, led to the starting of the Health Reform Institute, which, although it failed because of its obsolete methods, was the nucleus from which has grown the broader development of the Battle Creek Sanitarium. Without the encouragement and backing of James White, I should never have ventured to undertake the task of conducting the enterprise, small as it was; and I am sure that my feeling of incompetency for the task was shared by all who knew the pale youth who had acquired his sheepskin only a few months before. I keenly felt my unfitness, but was stimulated by the confidence placed in me to utmost endeavor to succeed or die in the attempt, and as I was still suffering from the tubercular trouble which deprived me of my left lung, I feel that I owe to a merciful Providence my survival and support during the many arduous years since. That the enterprise started under so unfavorable auspices did not fail as was predicted and expected by most of its friends was undoubtedly due to the fact

that the time had come when the world was ready for a new development in curative methods. I cannot take credit for conceiving and carrying to completion a great project. I saw only the beginning of a new idea, was put on board, so to speak, and have come along with it and watched its development.

To all these I owe a deep debt of gratitude for loyal support and sympathetic and appreciative cooperation, and when in the not distant future Old Father Time or some accident or emergency shall remove me from the work which I have loved better than my life and to the upbuilding of which I have devoted my utmost efforts and energy, I hope and pray that the ideals and standards of wholesome and scientific living which have been here erected may be loyally maintained and supported and that the atmosphere of kindliness and sympathy for the unfortunate victims of disease and misery may continue and that the institution may stand as a great lighthouse sending forth illuminating rays to brighten dark places and gloomy homes and that the Battle Creek Sanitarium shall ever be known as "a house by the side of the road" where suffering ones may find succor and the weary and despondent rest and peace and sunshine.

2-24-37

ALCOHOL COMPARED WITH FLORIDA SUNSHINE

Alcohol is the very reverse of sunshine; it is midnight darkness of the densest sort. For centuries its votaries have proclaimed alcohol as an illuminator, a lightener of burdens, a dissipator of gloom, a real joy maker, a rejuvenator and a stimulant of marvelous potency; and I am sorry to say medical men more than any others have been responsible for these false ideas. But modern scientific research has shown that all these claims are absolutely false. They are, in fact, the very opposite of the truth. Alcohol is not a stimulant; it is a depressant. It is not a food; it is a poison, the excretory product of a fungus plant. Instead of strengthening, it paralyzes. Instead of enlivening, it sows the seeds of death, degeneration and decay. It is the god of poverty, the demon of despair, the enemy of decency and health, a riotous disturber of society, a generator of crime and one of the greatest of all obstacles to human progress.

Another point which I wish to emphasize is the fact that the moonshine which flooded Florida in boom days and the years immediately following is still here notwithstanding the claims of the anti-prohibitionists that repeal of the prohibition amendment would wipe it out. We hear little nowadays about moonshine because there is no occasion for concealment. Beer, whisky, rum and other intoxicating liquors are flaunted in the face of the public on every corner, in

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Dr. John Harvey Kellogg, The Miami-Battle Creek, Michigan Springs, Fla.

every public house, in the newspapers and magazines and on billboards and wherever they can be displayed. Beer soaked politicians wax jubilant as they total up the tax income from whisky and beer, neglecting to mention the enormous economic losses resulting from direct expenditures of cash for a worthless and harmful thing, and the blunders made by minds flabbergasted by the devil's broth concocted in breweries and the soul and body destroying whisky and gin poured out in an ever increasing stream from hundreds of distileries.

How different is the work of this destroyer of men, soul and body, this debaser of women, this Moloch of childhood which brings into the world every year thousands of infants stamped with inferiority or even imbecility,-- how utterly different in its character and influence is the sunshine, which rarely even for a day fails to spread its efulgent rays over the broad acres of this glorious region. Sunshine is the greatest source of life and health and energy known to science. The energy of the sunlight that falls upon the State of Florida every day, if it could all be utilized, would run all the machinery in the United States for a hundred years. The green leaf is a cunning trap which catches the sunshine and converts it into dollars in the shape of oranges, green vegetables, luscious papayas, things that the rest of the world are hankering for and must have. Your wonderful sunshine is creating wealth for you every minute and it is inexhaustible. Phosphate mines and coal mines get dug out and gas and oil wells run dry. But your sunshine will go on forever. All you have to do is to plant the seed to create the green fields to capture it.

But alcohol, instead of making money, wastes money; instead of creating, it destroys. It is a veritable demon of destruction. It destroys life, property, intellect, happiness and peace. It has made

more widows and orphans than any other drug.

Sunshine creates, alochol destroys. It is a consuming fire, a bottomless pit of waste and destruction.

Sunshine creates food and comfort. The chlorophyll of the green leaf converts sunshine into delicious fruits and nutritious vegetables which the millions of people in the frozen North are hungering for. Every fruit and every vegetable is simply sunshine in cold storage.

But alcohol is a poison, a very repulsive, delusive and dangerous drug. As a matter of fact, it is an excrement. The yeast plant which produces it is a member of the fungus family, a class of plants which in several respects resemble animals. Like animals, fungi excrete poisonous substances, and the alcohol which men so highly prize and seek so persistently is an excrementitious substance. It is thrown off by the plant as a useless poisonous excretory waste. One experiences unpleasant qualms at the thought of the Chinaman's bird nest soup, but beer and wine, cocktails, punch and toddies are in the same class. They are excrement, as far removed from food as possible.

And sunshine cures disease. I have seen veritable miracles of healing wrought by sunshine. In one case the whole abdomen was filled with tubercles. A poor girl was suffering agonies and nearly

dead. As a last resort an operation was performed to relieve a terrible dropsical distension, ~~condition,~~ but the condition found was apparently hopeless. It seemed certain that a visit from the undertaker would occur within a day or two. Although the case appeared to be practically hopeless, it seemed worth while to make one more effort. She was placed in the sunshine for half an hour and each day a little longer. At the end of a week she was still alive and a little better. In three months she was able to return to her home and a few months later she was teaching school, and today, after three years, she is a rosy cheeked, handsome young woman enjoying excellent health without a trace of her old malady.

Now, what could alcohol have done in such a case? Alcohol never cured anything. It is not a healing agent. At best it is merely a narcotic which may relieve pain by benumbing the nerves like an anesthetic, but does nothing to help nature in the cure of diseases. It hinders instead of helping. It is a grave digger rather than a healer. I have been practicing medicine for more than 60 years and have never found it necessary to prescribe one dose of wine or whisky.

But what a real stimulant the sunshine is. When the winter snows are gone the fields are all brown, not a green blade in sight. The warm sun's rays smite upon the brown earth for a day or two and a carpet of green springs up spreading out over millions and millions of square miles. In the words of the poet Lowell:

"Every blade feels a stir of
might,

Something within it that reaches
and towers,

And groping blindly above for
the light

Climbs to a soul in the grass and
the flowers."

Under the influence of the vernal sun every spring is a veritable resurrection morn.

Now, how about alcohol? It was once thought to be a stimulant. Some people still talk about alcohol as a stimulant, but science long ago declared it to be a narcotic. It has no stimulating properties whatever; it is a depressing agent. It is a deceiver. A man feels weak and he takes alcohol and he imagines he is stronger; but when science tests him with a dynamometer, he is not stronger but weaker.

A man feels cold, he takes a toddy and thinks he is warm; but he is not warmer, he is actually colder. The thermometer shows that his temperature is lower. Alcohol brings the blood to the surface so that the body loses heat more rapidly than before.

A poor man spends his last dollar for drink and has a glorious delusion of wealth when he is actually penniless. Alcohol is a nerve fooler and a fakir.

Sunshine <u>prevents</u> disease if we open our doors and windows and let it in.

Alcohol <u>causes</u> disease. A study of statistics in Sweden showed that 25 per cent of cases of apoplexy and hardening of the arteries must be charged to alcohol. Reports from State lunatic asylums show that more than 25 per cent of the wretched inmates of those institutions were sent there by alcohol. And it is so-called "good" alcohol that does the mischief. Alcohol belongs to a bad family. There are half a dozen members and they are all bad, some a little worse than others, but not one good citizen among them. The notion some people have that

whisky is all right if it is only good Scotch is a snare and a delusion. It is good whisky that is responsible for the terrible burdens which intemperance has laid upon the world. The little extra harm that denatured whisky, and so-called bad whiskey, does, is not a drop in a bucket to the woe which "good whisky" pours into human society.

Florida sunshine is a marvelous rejuvenator. I can hardly venture out upon one of your streets without meeting some old patient, often an elderly person, who has come down here to Florida and in a few months here or a few years has become so transformed as to be scarcely recognizable. I met a lady who was my patient twelve years ago and was then so wrinkled and haggard and wizened and prematurely old that when I met her here, a plump, rosy cheeked, handsome woman, I did not recognize her and could discover little resemblance to my old patient. When I asked her what had wrought the miracle, she answered, "Two years in Florida sunshine."

Did whisky ever do that sort of thing for anybody? Never. But millions of times it has done the very opposite. Alcohol is a regular recruiting agent for Old Father Time. A habitual drinker is older at 40 years than he ought to be at 75. Insurance statistics show the mortality of moderate drinkers to be 40 per cent greater than that of abstainers.

But you say, "What about these [redacted] men who come down from the North with big purses and big paunches and whisky bottles in their hip pockets? Are not they proof that alcohol is harmless?" Sam Jones, a great revivalist, answered that question when an old fellow stood up

in one of his meetings in Kansas City when he had been telling some damaging facts about alcohol and said, "Mr. Jones, look at me. I have been smoking ever since I was 10 and drinking whisky ever since I was 14 and now I am 84 and a sturdy man yet. What can you say to that?"

Mr. Jones replied, "All that means is that you are uncommon tough, and if you had not smoked tobacco and drunk whisky they would have had to kill you with an axe on Judgment Day."

For every one of these extraordinarily hardy men who have stood up for years and years in spite of tobacco, alcohol and other unwholesome things there are a thousand younger men who have tumbled into premature graves while following their bad example.

No man who desires to enjoy the use of his faculties, physical, mental and moral, to their full capacity can afford to use alcohol in any dose. There is no such thing as moderate drinking. Since alcohol is a poison, all use of it is immoderate. The difference between a food and a poison is that a food is wholesome in ordinary doses and only harmful in immoderate doses, whereas a poison is harmful in all doses.

Some forty years ago, the writer demonstrated by means of the chronometer of Verdin and other delicate measuring instruments, that alcohol, even in small doses, depresses all the nerve functions concerned in the reception of impressions through the sense of touch and sight. The reaction time was notably lessened, even by very small doses. The lifting power of the muscles was also reduced nearly twenty-five per cent by a dose of whisky. The maximum effect was noted at the end of one or two hours.

F. G. Benedict, of the Carnegie Nutrition Laboratory of Boston, published the results of elaborate studies of the effects of alcohol by means of the most delicate psychologic tests, conducted by himself and his colleagues, concerning which he says: "It will doubtless be considered of enormous practical significance that in none of the data have we any indication of the pure facilitation of the motor processes, but depression . . . seems to be one of the most characteristic effects of alcohol. . . . The general neuro-muscular depression may be regarded as presumptive evidence of the effect of alcohol on organic efficiency." In other words, Dr. Benedict finds unmistakable evidence that alcohol is first, last, and all the time, a depressing drug, a poison which strikes at the organic processes, the very foundations of life.

Smith found that moderate amounts of alcohol daily (one to three ounces) for twelve days, diminish the power to memorize seventy per cent. Smith concluded that half a bottle of wine or two to four glasses of beer a day not only counteract the beneficial effects of "practice" in any given occupation, but also depress every form of intellectual activity, that every man, who, according to his own notions, is only a moderate drinker, places himself by his indulgence on a lower intellectual level and opposes the full and complete utilization of his intellectual powers.

Nervous impressions travel over nerves in a healthy person at the rate of ninety-one feet per second; but under the influence of alcohol the rate of transmission may be as low as thirteen feet per second. That is, under the influence of alcohol, seven times as long may be required to hear, feel, taste or to receive an impression of

any sort, as by a normal person. Such a man called upon in an emergency would require at least seven times as long to make up his mind what he ought to do as a healthy person requires, and when large doses of alcohol are administered, the effects are still more pronounced.

Smiedeberg, more than thirty years ago, pointed out the fact that under the influence of alcohol "the finer degrees of observation, judgment and reflection disappear," and that all the effects produced by alcohol are really those of a sedative or paralyzing agent. Benedict has shown that the depressant toxic effects of alcohol are produced by ordinary beverage doses, and that not alone the higher faculties are affected, but the automatic reflexes, including those which control the circulation and other vital functions. Indeed, the carefully conducted researches of Benedict and Wells showed that the reflexes are much more sensitive to the effects of alcohol than the higher faculties, and are the first to show its influence.

When a person suffers from typhoid fever, smallpox or any other infectious disease, if he recovers it is because the body gradually acquired the power to destroy the infecting germs and thus establishes immunity whereby it conquers its germ assailants and reëstablishes health. In view of this fact it is no wonder that under the method of treating typhoid by frequent doses of whisky was followed by a mortality rate of 25 to 30 per cent, whereas at the present time since fever patients are no longer kept in a state of intoxication, the death rate has been reduced to a level less than half as high.

I think the majority of practicing physicians at the present time rarely prescribe alcohol in any form. The mystic spell by which this

3-7-37

A RATIONAL SYSTEM OF PHYSICAL TRAINING BASED ON STRENGTH TESTS OF ALL IMPORTANT GROUPS OF MUSCLES

The results when plotted on a graph show both the absolute and the relative strength of the various muscular groups.

The low points, the weak points.

The aim of training should be to bring all groups to an approximate level; in other words, to produce symmetry.

Three types of symmetry.

1. Structural symmetry. Symmetry of form which depends on structure, bone formation, muscle development and fat distribution.

2. Functional symmetry. Strength and efficiency of muscular groups, the result of development and training. This requires coördination and well balanced development of the flexor and extensor muscles.

The chief aims of exercise are

1. Encourage metabolism.
2. To develop strength of muscles.
3. To develop efficiency through dexterity.
4. To aid all the vital functions,-- respiration digestion, circulation, heat production, elimination, growth and bone development.
5. Correct posture.
6. Symmetry of form.
7. Grace of movement.

For all of these symmetry or balanced muscular development is essential.

Develop this subject by showing how symmetry is necessary

for each particular object to be accomplished by muscular exercise.

Make studies of different types of persons, dancers, athletes, boxers, sedentary persons.

Make a comparative study of curvatures.

Determine if there is any relation between chart findings and visceral displacement; also between shadowgraph and graph.

SOY ACIDOPHILUS MILK

A HIGHLY POTENT CULTURE OF A NEW TYPE OF LACTOBACILLUS ACIDOPHILUS

FOR CHANGING THE INTESTINAL FLORA

More than 40 years ago, Bouchard of Paris demonstrated the pathogenic character of the intestinal flora and the toxicity of its product. Herter of New York some years later confirmed the observations of Bouchard and added important facts in relation to the pernicious influence of Cl. Welchii, B. coli, B. putrificus, B. sporogenes and other putrefactive organisms.

ORIGIN OF THE IDEA

Quinck, a pupil of Metchnikoff, the eminent biologist of the Pasteur Institute, who discovered phagocytosis and the defensive function of the leucocytes, conceived the idea of combating intestinal infections by the implantation of an organism antagonistic to parasitic and pathogenic bacteria, but harmless to the body. Metchnikoff recognized the value of the suggestion and set out to find the beneficent bacillus. He believed he had proved experimentally that the bacillus Bulgaricus, discovered by another of his assistants, Dr. Tissier, in yougurt, a buttermilk used extensively in the Orient from prehistoric times, could be implanted in the human intestine.

WHY BACILLUS BULGARICUS FAILED

The Lactobacillus Bulgaricus was exploited by a nephew of Metchnikoff under the name Lacto-Bacilline, which was in great vogue for a number of years and apparently was in many cases beneficial, but it was finally discredited through the demonstration by Rettger and others of the fact that this organism could not be implanted in the colon and that it rarely if ever survived in the alimentary tract at a lower level than the duodenum.

DISCOVERY OF LACTOBACILLUS ACIDOPHILUS

THE NATURAL PROTECTIVE ORGANISM OF THE INTESTINAL TRACT

In 1900 a new lactic acid-forming organism was discovered in the stools of nursing infants by Dr. Tissier which because of its form was named Lactobacillus bifidus. Tissier noted that the stools of new-born infants, at first wholly free from bacteria, within a few hours are swarming with B. coli, B. Welchii, streptococci and other organisms ordinarily found in fecal discharges. He discovered that a day or two after the infant begins to nurse, a new organism appears and B. coli and other organisms begin at once to diminish in numbers and within two weeks disappear, the intestinal flora consisting thereafter almost exclusively of the Lactobacillus bifidus.

About the same time Moro discovered in the stools of both infants and adults a Lactobacillus which he called acidophilus. This organism closely resembles Lactobacillus Bulgaricus in appearance, but differs from it in the fact that it is indigenous to the colon. The Lactobacillus bifidus and Lactobacillus acidophilus were many years later shown to be identical, differing morphologically under the influence of different nutrients.

THE FIRST THERAPEUTIC USE OF LACTOBACILLUS ACIDOPHILUS IN THE UNITED STATES

The new organism was first used therapeutically in this country by Kellogg through cultures obtained from the Pasteur Institute through Dr. Tissier then acting as consulting bacteriologist of the Battle Creek Sanitarium. It has since been continuously and extensively used in that institution and also in state hospitals and has proved itself of very great service in combating colitis and various forms of intestinal and digestive disorders and as a means of suppressing intestinal putrefactions through changing the intestinal flora. Our records show that between 1912 and the present time, 1937, our laboratories have supplied to hospitals and private physicians more than 1,500,000 quarter liters (the usual dose) of whey milk cultures of acidophilus. It was not, however, until publication of papers by Rettger of Yale in 1922 and later that this remarkable organism was brought to the attention of the profession in this country.

CRUICKSHANK'S DEMONSTRATION OF CHANGE OF THE FLORA IN VITRO

A few years later, Cruickshank of Aberdeen, Scotland, demonstrated experimentally that under proper lactose feeding, acidophilus will cause the rapid disappearance of Cl. Welchii, B. coli and all putrefactive and pathogenic organisms in vitro. His experiment consisted in adding two grams of fresh feces to a pint of milk in a flask which was then placed in an incubator. When examined at the end of two weeks, the contents of the flask were found to be a pure culture of Lactobacillus acidophilus. All other organisms had disappeared. This experiment clearly demonstrates the potency of this organism as a means of suppressing pathogenic and putrefactive bacteria when employed with the proper technic.

THE DISCOVERY OF A NEW TYPE OF LACTOBACILLUS ACIDOPHILUS - SOY ACIDOPHILUS

In a research undertaken in the bacteriological laboratory of Battle Creek College to determine the influence of common foodstuffs upon the growth and development of the Lactobacillus acidophilus, the discovery was made that when grown in soy milk, a new and much more vigorous type of Lactobacillus acidophilus is produced. This new type has been studied by a number of able bacteriologists, among whom may be mentioned Dr. Carroll Grant, Professor of Bacteriology of Brooklyn College, Brooklyn, N. Y., formerly assistant to the eminent bacteriologist Professor Rettger of Yale University, Roderick, Howe, and others, all of whom noted with surprise the extraordinarily rapid growth, the high count and the very large size of the individual organisms, more than double the size shown in dairy milk

cultures (see micro-photograph).

SOY ACIDOPHILUS SHOWS MUCH HIGHER COUNTS THAN ACIDOPHILUS MILK

Powell, formerly local bacteriologist for the Florida State Board of Health, after a careful study of the Lactobacillus acidophilus, reported as follows:

"Experimental studies of the relative production of acidophilus bacilli using soy bean emulsion and whole cow's milk as comparative medias show that the emulsion will produce an average of five times the number of viable organisms that is produced by whole cow's milk under identical conditions.

"The organisms produced by the soy bean milk emulsion stain more readily and deeper than the organisms grown in cow's milk.

"Two strains of B. acidophilus were used, both medias were inoculated with 0.1.c.c. of a broth culture and incubated at 37.5 C. The cultures were compared at the end of forty-eight and seventy-two hours. Twenty cultures were made in each media.

"O. K. Powell."

THE PROPHYLACTIC AND THERAPEUTIC VALUE OF THE SOY ACIDOPHILUS IS WELL ESTABLISHED

The Lactobacillus acidophilus has clearly shown its ability to combat putrefactive and pathogenic bacteria both in a laboratory flask and in the colon. It is the implacable enemy of harmful and destructive bacteria and if after being once implanted in the intestine of the human infant through the act of nursing, it remains dominant as seems to be the evident purpose of its implantation, intestinal infections should be almost unknown. Unfortunately this highly desirable protection is often largely or wholly lost by the dying out and degeneration of the natural protective aciduric flora of the alimentary tract. In the healthy nursing infant the percentage of acidophilus is found to be 90 to 100. When this is the case, the stools are free from rancid or offensive odor and the child remains in good health. When the infant's stools are dark and bad smelling, the percentage of acidophilus is found to be 10 to 20 per cent or even less. Sometimes the protective organism appears to be entirely absent. By the free use of soy acidophilus milk with lactose or Lacto-Dextrin feeding, the normal flora has been quickly restored in some hundreds of cases in which the normal protective flora had been lost. The remarkable vigor of growth characteristic of the soy acidophilus organism makes it a thoroughly dependable means of changing the flora in cases in which other measures have failed.

SOY ACIDOPHILUS CONTRASTED WITH DAIRY MILK ACIDOPHILUS

The accompanying micro-photographs, made with the same degree of magnification, clearly indicate the difference in size and vigor of growth between the dairy milk type and the soy type of acidophilus.

FIG. 1

A culture of the Lactobacillus acidophilus grown in cow's milk.

Length of individual bacilli 8 microns.

FIG. 2

A culture of the Lactobacillus acidophilus grown in milk prepared from the soy bean.

Length of individual bacilli 16 microns.

DAIRY MILK NOT A GOOD CULTURE MEDIUM FOR ACIDOPHILUS

The good results sometimes following the prolonged use of potent cultures of the Lactobacillus acidophilus have clearly demonstrated the soundness of the principle involved in the teachings of Bouchard and Metchnikoff, but unfortunately the uncertainty of the results due to fluctuations in the quality of commercial acidophilus and the long time required and usual failure have discredited these products to such a degree that the committee on therapeutics of the American Medical Association has thought it necessary to withdraw its endorsement. The shortcomings of acidophilus milk are incidentally very clearly pictured in Rettger's late book, "Acidophilus."

COW'S MILK A POOR CULTURE MEDIUM FOR ACIDOPHILUS

Dr. Tissier noted many years ago (1912) that cow's milk is not a good culture medium for the Lactobacillus acidophilus. In this medium the organism grows at first so slowly that 25 or 30 transfers and several months' time are required to produce a satisfactory acidophilus milk. The lactobacillus acidophilus is adapted to an anaerobic environment. As Rettger has clearly pointed out, the long exposure of acidophilus to unnatural conditions lessens its adaptation to the environmental conditions of the colon. This renders its implantation difficult. In soy acidophilus milk the Lactobacillus acidophilus begins at once a vigorous growth. Numerous transfers and hence a long period of aerobic exposure are not required.

The individual organisms grown in soy milk are more than twice as large as those grown in cow's milk and far more numerous as shown by Powell and by every other bacteriologist who has studied the new type. (See cuts.)

THE SUPERIOR FOOD VALUE OF SOY ACIDOPHILUS MILK

The following comparative table shows in the first column the composition of soy acidophilus milk, the figures given being based upon an analysis of the milk made by Prof. Willard, Dean of the Department of Chemistry of the University of Michigan:

	Soy Acidophilus Milk	Cow's Milk	Human Milk
	Per Cent	Per Cent	Per Cent
Protein	3.60	3.30	2.01
Fat	1.52	4.00	3.7
Carbohydrates	5.00	5.00	6.4
Calcium	0.025	0.114	0.021
Iron	0.0010	.0002	.0005
Ash	0.79	0.7	0.2
Calories per ounce	13.7	19.7	19

The composition of soy acidophilus milk closely resembles that of cow's milk. It contains less lime, which is an advantage, since cow's milk contains an excess, more than three times that found in human milk, being adapted to nourish an animal that doubles the weight of its bony structure in a few weeks. The lime content of soy acidophilus milk is practically the same as that of human milk.

The iron content of soy milk (.0010) is five times as great as that of cow's milk and double that of human milk, which, in connection with its richness in vitamin A, gives it superior quality as a blood building nutrient.

The soy bean, unlike cereals, is a basic ash product, and combats acidosis. This is not true of cow's milk, which is neutral and hence does not combat acidosis. Its principal proteins are soluble in water. Its carbohydrates are chiefly pentoses instead of saccharides and hence not assimilable. Lactose is added to supply this deficiency.

Vitamin Con ents

Soy acidophilus milk, made by the Battle Creek Food Co. of Battle Creek, Mich., and the Home Milk Producers Association of Miami, Florida, is much richer in essential vitamins than is cow's milk. It contains in each quart the following vitamins:

5,000 units of vitamin A, which builds up resistance to infections.

500 units of vitamin B, which promotes growth, bowel action and digestion and prevents neuritis.

500 units of G, the anti-pellagra vitamin, which promotes growth and general nutrition and ...

500 units of vitamin D and a rich source of vitamin E.

Soy acidophilus milk so closely resembles mother's milk in its chemical composition that when necessary it may be safely substituted for it in combination with other foods in bottle feeding as was done by Dr. Dafoe in rearing the quintuplets.

Its generous supply of vitamins, more than double that of dairy milk, gives the soy acidophilus milk great value for the feeding of undernourished and feeble infants. For adults, it provides one of the best known means of insuring an abundant intake of essential vitamins. Two or three glassfuls daily will suffice to meet the daily vitamin requirement regardless of what the rest of the diet may be. A glassful of orange or grapefruit juice will adequately supply vitamin C. Florida climate supplies an abundance of the sunshine vitamin D, and vitamin E is so widely distributed in foodstuffs that there will be no lack unless it is intentionally excluded.

A glassful (6 or 8 ozs.) of soy acidophilus milk at each meal will furnish all the vitamin A ordinarily required by an adult and so insures a super abundance of this vitamin, which, according to Sherman, is advantageous in promoting super health. Rats fed an extra amount of vitamins A and G were larger, had finer fur than other rats and lived nearly three times as long. When introduced directly into the colon by enema, the beneficial results are almost immediate. Stasis is relieved and spasticity and

gas production rapidly diminish until in a few weeks they disappear. Gas is due to the activity of B. coli and Cl. Welchii. Acidophilus produces only lactic acid, a non-volatile liquid, instead of CO_2.

THE ENERGY VALUE OF SOY ACIDOPHILUS MILK

The table shows the energy value of soy acidophilus milk to be more than two-thirds that of cow's milk or human milk. This is chiefly due to the comparatively low fat content (15 per cent), which adds to its digestibility.

CLINICAL RESULTS

The most important objective in the use of soy acidophilus milk is the suppression of intestinal putrefactions. Its efficiency in combating the activity of putrefactive and pathogenic bacteria, such as B. coli, Cl. Welchii and various species of streptococci is due to the fact that it produces lactic acid and is able to tolerate a highly acid medium (one per cent or more) while the parasitic pathogenic organisms require an alkaline medium and are unable to tolerate more than a very low percentage of acidity (1/10 per cent). The Lactobacillus acidophilus produces lactic acid from lactose or dextrin, which must be used with soy acidophilus in order to secure prompt and thoroughgoing results.

Since the discovery of the soy type of acidophilus in 1933, its clinical use has developed rapidly. Its ability to make a marked change in the intestinal flora has been shown in hundreds of cases in many of which acidophilus milk had been previously used without marked results. A notable example of its efficiency is afforded by the experience of the quintuplets. At the age of four months the famous infants, in spite of the meticulous care given them by Dr. Dafoe, developed a very severe type of bowel infection. Since the fourth day after their birth they had taken no other food than mother's milk and extraordinary precautions had been taken to prevent infection from any source. Dr. Dafoe and his two nurses had worn masks. They were viewed by the thousands of strangers who visited them only from a distance or through glass and yet Dr. Dafoe reported severe bowel trouble. The infection was doubtless due to the fact that they had never had an opportunity to receive a proper implantation of the Lactobacillus acidophilus through breast feeding, the natural method by which the colon bacillus, Cl. Welchii and other organisms which invade the infant's colon immediately after birth, are driven out and their harmful effects prevented through the complete occupation of the alimentary tract by the Lactobacillus acidophilus, as discovered by Tissier. Through the use of soy acidophilus milk they were cured in a few days and since have been kept in good health by the continued use of soy acidophilus milk. Dr. Dafoe gives each of the quins a half pint of soy acidophilus milk at four o'clock every afternoon.

Soy acidophilus milk is highly efficacious in the treatment of both chronic and acute colitis. The accompanying cut shows what was accomplished in a case of colitis of long standing through the use of soy acidophilus milk by mouth and by enema within six weeks after beginning treatment, when many other measures had been employed without success.

FIG. 3

A roentgenogram of the colon of a patient who had suffered for many years from colitis. The descending and pelvic colon are in a highly spastic condition. There had been no natural evacuations for more than a year.

FIG. 4

A roentgenogram of the same colon shown in Fig. 3 after six weeks' use of Soy acidophilus milk by mouth and by enema. Within four weeks after beginning the use of soy acidophilus milk, natural evacuations occurred daily.

Soy acidophilus milk secures therapeutic results by removing the cause through displacing the pernicious bacteria and establishing a natural and harmless aciduric flora. Physicians who have had large experience in its use, both in private and hospital practice, report most gratifying results in the treatment of cases of allergy both in infants and adults, not only in cases in which the patient is sensitized to dairy milk but in non-pollen cases associated with intestinal toxemia, especially cases of asthma, skin eruptions and digestive distrubances which do not yield to an intelligent application of the measures usually employed in such cases. Dr. Walter F. Martin, the able genito-urinary specialist of the Battle Creek Sanitarium, reports success in freeing the urine from B. coli in cases of long standing which had resisted all other means in current use.

Cases of gastro-duodenitis and especially cases of duodenitis generally improve rapidly under the use of soy acidophilus milk. In cases of peptic ulcer pain disappears quickly under the use of soy acidophilus milk, and in numerous cases that have been thoroughly treated by this method, definite and permanent cures have been reported.

HOW MUCH TO TAKE

In general, a glassful of soy acidophilus should be taken at each meal. An additional glass taken at bedtime will hasten the change of flora. Children require larger doses than adults in proportion to their size. For a three year old child a half glassful of soy acidophilus milk with a large spoonful of Lacto Dextrin, taken three times a day, will effect a rapid change of flora. A much larger amount may be taken without injury. We understand that Dr. Dafoe keeps the quintuplets in good health by giving them a glassful of soy acidophilus milk every afternoon and another half pint at or between the different meals. Very small doses, one or two teaspoonfuls, mixed with the regular feeding, may give excellent results in very young children. Dr. Dafoe began its use with the quintuplets with teaspoonful doses.

It is not necessary that the soy acidophilus milk should be taken by itself; it may be mixed with ordinary milk, cream, orange or tomato juice, gruel and other liquid foods. For children who dislike acid, water, and a little sugar may be added. For very young bottle-fed infants a few teaspoonfuls of soy acidophilus milk with Lacto Dextrin may be added to the feeding bottle. All bottle-fed infants will profit greatly by its use. Beta-lactose (B-Lac) or malt sugar should be used instead of cane sugar for sweetening the feeding mixture.

THE BATTLE CREEK FOOD COMPANY

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VITAMIN A

Vitamin A, one of the most important of the vitamins for the promotion of growth, also builds up resistance against infection, especially acute and chronic infections of the respiratory tract. Clinical experience has clearly shown that an abundant supply of vitamin A is of great value as a protection against acute and chronic colds, sinusitis, infections of the ear, sore throat, bronchial catarrhs and flu as well as lung tuberculosis.

Recent studies have shown that the absence of vitamin A may give rise to gallstones, kidney stones and stones in the gall bladder. This observation, first made by a Japanese investigator, is believed to be due to the fact that the absence of vitamin A leads to the development of infections which produce the calculi. The same observer found that by giving large quantities of vitamin A, gallstones and kidney stones might be made to disappear. Similar observations have been made by others in experiments upon animals.

It is known that a deficiency of vitamin A gives rise to indigestion and infections of the intestine. This is a possible cause of appendicitis and colitis.

A deficiency of vitamin A is the recognized cause of night blindness and other diseases of the eye. In animal experiments ulcers of the cornea and even destruction of the eyeball result from the loss of the protective influence of vitamin A.

In young infants day blindness has been known to disappear within less than half an hour after administering vitamin A of plant origin, which was found to be more than 40 times more potent than

vitamin A in fish oils. One hundred units of plant vitamin A produced quicker and more lasting cures than 5,000 units of fish liver vitamin A in cod liver oil.

All vitamins are originally of plant origin. The second-hand and left over vitamins of liver and other tissues appear to be inferior in character and should be used only when plant vitamins are not available. This is known to be true of vitamin A and is probably equally true of other vitamins.

(This should be printed as a slip attached to every package of vitamized foods. When we get out new sets of labels we will add new material to the label.)

HUMAN LIFE EXTENDED SEVEN YEARS BY VITAMINS

After many years of experiments in feeding animals to determine the influence of vitamins on health and life extension, Professor Sherman of Columbia University, has announced the discovery that by proper care and abundant feeding of certain vitamins, particularly vitamins A and G, at least seven years may be added to human life.

So it is worth while to count the vitamins as well as the calories of the bill of fare. The vitamin intake is now known to be almost, if not quite, as important as the supply of energy calories, and it is a much more complicated subject because there are many sorts of vitamins, six at least, and only one calorie, and each one of the different vitamins has several important rôles to play in the body. The vitamins activate and govern the utilization of food and all the important body functions. A deficiency of any one of them results in serious impairment of health and vigor. The entire absence of a single vitamin leads to death as certainly as complete starvation. An insufficient supply gives rise to avitaminosis, the most common of all diseases.

In an address to the faculty, nurses and dietitians of the Sanitarium, Dr. Sherman stated that at least one-half of the food intake should consist of the so-called protective foods; that is, foods which are rich in vitamins and tissue building elements.

AVITAMINOSIS

This newly recognized disease is caused by a deficiency of vitamins. It is probably the most common of all human maladies, at least among civilized people, and also affects domestic animals. Each of the six vitamins, A, B, C, D, E, G, prevents the development of certain symptoms and conditions when present in adequate amounts. If it is absent or deficient, the symptoms

or conditions quickly appear.

The following is a brief summary of the symptoms and conditions ascribed by various recognized authorities to a deficiency or absence of individual vitamins:-

Symptoms and Conditions Caused by Vitamin A Deficiency

1. Liability to common infections, frequent colds, nose troubles, sinus infections, earache, deafness aggravated by colds, tuberculosis in young persons, bronchitis, pneumonia.

2. Skin affections, such as acne, boils, dryness, roughness, especially of thighs, shoulders, forearm, buttock, especially in adults, hair dry, bleached, baldness, diseased follicles, comedones of face, and exophthalmic goiter.

3. Decayed teeth and diseased gums--pyorrhea.

4. Sore eyes, corneal ulcers, specks before the eyes and light flashes, night blindness--inability to see in a dim light; day blindness--slow recovery of acute vision after exposure to bright light (Car drivers should note).

5. Infections of the kidneys and bladder and stones of the kidney, urethra and bladder.

6. Gall bladder disease and gallstones.

7. Gastric or duodenal ulcer.

8. Anemia, either secondary or pernicious.

9. Weakness, nerve and muscle degeneration, especially the nerves of the face and head.

10. In animals, degeneration of the sex glands, difficult labor, death of foetus, and high mortality of the newborn (Probably the same in human beings).

11. Retarded growth, especially in young children, dwarfism.

Many of the above symptoms and conditions either disappear at once or are very greatly alleviated when foods which contain vitamin A in rich abundance are added to the bill of fare in sufficient amount. Dairy products and greens are the best sources of vitamin A. Cod-liver oil is much inferior to spinach, parsley, kale and dandelion as sources of vitamin A, and has caused grave sickness in some cases, while vitamin A from plant sources has been shown to be absolutely harmless, besides being far more potent. Plants and sunshine are the original sources of vitamins.

VITAMIN B DEFICIENCY SYMPTOMS

1. Slowed growth and development.
2. Weakness and malnutrition.
3. Indigestion, gastric acidity, and lack of appetite.
4. Constipation.
5. Colitis, and other intestinal infections.
6. Deficient milk secretion in nursing mothers.
7. Symptoms aggravated by fever, vigorous exercise, and free use of carbohydrates.
8. Vagatonia and weakness.
9. Neuritis.
10. Great deficiency of vitamin B causes beriberi, in Oriental countries, with great loss of life, due to the use of polished rice.

In this country the use of fine flour bread, polished rice, new process corn meal, sugar, and candies produces thousands of cases of the same disease in milder form and so not recognized, although producing the grave symptoms above described, which are often easily curable by properly regulating the diet.

VITAMIN C DEFICIENCY

Symptoms

1. Defective teeth.
2. Impaired digestion.
3. Malnutrition.
4. Retarded growth.
5. Nervousness.
6. Headache.
7. Low resistance to infection.
8. Failure of fractures to unite.
9. Very pronounced deficiency causes scurvy.

VITAMIN D DEFICIENCY

Symptoms

1. Constipation.
2. Pot belly and intestinal gas.
3. General weakness.
4. Nervous restlessness.
5. Failure of absorption and assimilation of food minerals.
6. Decay of teeth.
7. Rickets.
8. Bone deformities, particularly bow-legs and knock-knees.
9. Pigeon breast.
10. Misshapen head.
11. In very pronounced cases, curvature of the spine, beaded ribs.
12. Tetany or osteomalacia or softening and fragility of the bones.

VITAMIN E DEFICIENCY

Symptoms

As seen in animals

1. Weakness in legs.
2. Loss of hair.
3. Degeneration of sex glands.
4. Miscarriages.
5. High mortality rate of infants.

VITAMIN G DEFICIENCY

Symptoms

1. Slowed growth and development.
2. Disease of the skin and hair.
3. Indigestion.
4. Anemia.
5. Weakness with loss of vigor.
6. Diminished flow of milk in nursing mothers.
7. In severe cases, cataract, pellagra, emaciation.
8. Ulceration of tongue.
9. Eruptions on the back of the hands, feet and neck.
10. Diarrhea.
11. Mental disturbance.

By the aid of a bill of fare like that on the opposite page a dietitian can easily balance the bill of fare for vitamins as well as calories. A vitamin cook book is being prepared by the Sanitarium dietitian which may put in every home a ready means for safeguarding the body against one of the most universal and fundamentally dangerous

of all know enemies to human life and health, Avitaminosis.

[Note. Those who desire more information about vitamins and avitaminosis may receive a booklet "Vitamins in a Nutshell" by sending a dime to the Sanitarium News, Battle Creek, Mich.]

SPECIAL HEALTH VALUES OF THE SOYBEAN*

John Harvey Kellogg, M. D., LL. D., F. A. C. S., Medical Director of the Battle Creek Sanitarium, Battle Creek, Michigan, and Medical Director of the Miami-Battle Creek, Miami Springs, Florida.

The rapid development of the production and use of the soybean (Soja hispida) in this country within the last quarter of a century, and the multitudinous uses to which it is being put, fully justify the name "wonder bean", which it has been called by American writers, and the appellation, "little honorable plant", by which it is known in China.

In South China, the soybean so completely replaces other sources of protein that there is no dairy industry, and meat, fish and even eggs, are very little used. The soybean is the chief source of protein for the common people and is referred to as "the poor man's meat."

Studies of this most remarkable of food products, especially in the United States and Germany, have shown it to possess not only extraordinary nutrient properties, but also some highly important prophylactic and therapeutic values, knowledge of which ought to be popularized as rapidly and widely as possible.

Although botanically classed with legumes, the soybean rather closely resembles the nut in its very low content of starch and high percentage of protein. It easily takes precedence over all other natural foodstuffs in the great percentage of protein which it contains, and protein of such superior quality that in animal feeding experiments it has proved itself to be capable of replacing proteins of all other sorts, even milk proteins. The soybean protein content is 40%, nearly twice that of average meat and four times that of eggs, three to four times that of wheat and other cereals, five to six times that of bread, twice that of lima and navy beans, walnuts, filberts and most other nuts. The protein of the soybean (glycine) is of high quality, like that of milk, containing

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*Read before the Section of Food and Nutrition of the American Public Health Association at the Sixty-sixth Annual Meeting in New York City, Oct. 5, 1937.

certain amino acids in which the proteins of nearly all other legumes and all cereals are deficient.

The oil of the soybean is also of superior excellence, containing as high a percentage of lecithin as do eggs (Schulze)[1]. Its percentage of calcium is 12 times that of wheat flour. Its ash is more highly basic than that of any other food, a quality which gives it great importance as a possible corrective of our too highly acid American diet, having, according to Engling (Becker), a basic equivalent of 24.50 mg. compared with 2.25 for human milk and 1.69 for cow's milk.

The soybean is an exceptionally excellent source of vitamins. All are present with the exception of vitamin C, the scurvy preventive, and this is abundant in beans which have been slightly sprouted. The soy is one of the few very rich sources of vitamin B, and contains 255 units of vitamin G per ounce, more than does any other plant food, a fact of much significance in view of Sherman's demonstration of the great value of this vitamin as a means of promoting health development, vigor and longevity.

Another surprising property of the soybean is its efficiency as a substitute for animal milk in infant feeding. In China, dealers in birds feed hatchlings exclusively on soybean milk, and motherless babes for centuries have been, in Oriental countries, fed on this plant milk.

In composition, as well as in appearance, soy milk has a very remarkable resemblance to animal milk. It is more like human milk than is cow's milk, containing one-half more protein than does human milk, half as much fat, an equal amount of lime, twice as much iron as does human milk, and 5 times as much as cow's milk. Its deficiency in carbohydrates is easily corrected by the addition of lactose or malt sugar.

Rottinger and Dembo[2] fed 50 infants on soybean milk and found it "a thoroughly suitable nutriment for sucklings." A Chinese investigator, Tso (Becker), successfully nourished infants from birth to the age of eight months with soybean milk and without animal food of any kind. Mader showed that soy milk is not only able to replace animal milk, but in some cases, to displace it.

The soybean has steadily grown in importance from a therapeutic point of view since Friedenwald and Ruröh showed (1910) it to be valuable in the feeding of diabetics not only on account of its richness in protein, its low carbohydrate content and its palatability, but because it in some unexplained way caused "a reduction in the percentage and the total quantity" of urinary sugar in diabetic subjects[3] on the usual dietary restrictions.

Rurah (1910)[4] and also Sinclair (1916)[5] found the soybean of great service as a food remedy for infants and young children suffering from summer diarrhea and infants sensitized to cow's milk.

The soybean has been shown by Becker and other clinicians to be of great value in the treatment of eczema and other skin affections. The marked acidosis which has been shown by many authors to exist in these cases is rapidly relieved by the free use of the soybean. The intense itching diminishes almost immediately, and within a few days disappears, as do later the skin lesions.

The remarkable influence of the soybean in combating secondary B. coli infections is clearly shown in a paper by Christian Becker[6], of the Pediatric Clinic of the University of Frankfort, where for several years soybean milk has been the routine treatment of kidney and bladder

infections in young children, and with results far better than have been obtained by other means.

Various authors have reported remarkable results from the feeding of soybeans or soybean milk in cases of arthritis, anemia, rickets, obesity and other morbid conditions.

Another property of the soybean which has recently come to light explains and establishes on a rational basis its value as a prophylactic measure against intestinal infections by promoting the development of a protective aciduric flora in the intestinal tract. Nearly forty years ago (1900) Dr. Tissier[7], an assistant of Pasteur, discovered in the stools of nursing infants a microorganism to which he gave the name Bacillus bifidus, now known as Lactobacillus acidophilus or bifidus-acidophilus. He observed that this organism in infants' stools two or three days after nursing began increased in numbers so rapidly that by the end of two weeks, the B. coli, Welchii, putrificus and other proteolytic organisms with which the stools of infants always become infected within a few hours after birth, had disappeared together with their offensive and toxic products.

The importance of suppressing putrefactive and pathogenic bacterial development in the intestine is strongly evidenced by the great interest shown in Metchnikoff's proposal to change the intestinal flora and the many and continuous efforts which have been made in this direction. The failure of acidophilus milk to fully meet the requirements of clinical use appears to be due to the fact noted by Tissier that dairy milk is a poor medium for this organism. Soybean milk supplies a medium which seems to be so especially adapted to the nutrient needs of the protective flora that it produces a strain or type which is much more vigorous, prolific, and hardy

than the milk grown organisms. Several able bacteriologists (Howe, Roderick, Powell) report counts per cc. two to five times as great as are found in milk cultures, with the individual organisms more than twice as large and more hardy, being less easily damaged by variations of temperature. Roderick and Howe report cultures viable for more than two years.

This rapid development of the Lactobacillus acidophilus with which the infant comes in contact in the act of nursing is due to the large percentage of lactose in human milk and gives to the contents of the infant's intestine so high a degree of acidity that the growth of putrefactive organisms is inhibited. This is evidently a provision of Nature for the protection of the body against invasion of the alimentary tract by putrefactive and pathogenic bacteria and probably also other parasitic microorganisms which require an alkaline medium.

The experience of the quintuplets, reported by Dr. Dafoe in an interesting medical paper[8], affords an excellent illustration of the remarkable influence of the soybean in controlling intestinal infection. Through the extraordinary circumstances of their birth, the quintuplets had no opportunity to have implanted in their intestines the protective Lactobacillus acidophilus which infants normally acquire by contact with the maternal breast. Notwithstanding the fact that they were fed on breast milk exclusively from their births, and in spite of the use of most extraordinary protective measures taken to prevent infection, they suffered at the age of four months a very severe attack of bowel trouble which baffled the consummate skill of their physician until he added to their food, soybean milk cultures of the Lactobacillus acidophilus. Improvement began at once. In a few days the stools were normal and by the continued use of the soy milk culture, the quintuplets have been kept free from bowel troubles since, except for brief

periods when its use has been interrupted. A well developed aciduric flora is maintained, the percentage of Lactobacillus acidophilus having increased from 20 to 85.

The experience of Dr. Dafoe and extensive laboratory studies have clearly shown the importance of the soybean as a means of developing and maintaining in the intestine a protective aciduric bacterial flora and this fact affords a rational basis for its therapeutic use in the several classes of disorders in which clinicians have found it to be highly efficient, even when other measures have failed. Here also may be found an explanation of the great role which this extraordinary food product has played in the sustenance of the Chinese during more than a hundred generations of well-sustained national vigor and physical development under conditions of sanitation which expose them to intestinal infections to an unusual degree.

The value of the soybean as a source of protein makes it one of the most important single items in our national food budget. In the face of a declining livestock industry, the United States Department of Agriculture has long recognized the need of increased plant sources of protein to ensure our growing population against national malnutrition. Most praiseworthy, though inadequate efforts, have been made to solve the problem by the planting of nut bearing trees.

Forty years ago, I was requested by Dr. Dabney, then Assistant Secretary of the United States Department of Agriculture, to prepare from plant sources a substitute for meat, and found in a combination of the gluten of wheat with peanuts a product having not only the essential nutrient values of meat, but a fairly close approximation in flavor and appearance. The soybean solves the problem so completely and so satisfactorily that with the proper development of its culture and use, there need be no fear of a protein

shortage and no need of a substitute. There is, indeed, evidence that Americans might profit greatly as the Chinese have by giving the soybean a large place in the national bill of fare. A few years ago (1923), Dr. Arthur Hunter, Chief Actuary of the New York Life Insurance Company, in an international study of blood pressures, found the systolic pressure of the average Chinaman to be ten points lower than that of the average American and gave conclusive evidence that the cause is to be found in the difference in the dietary habits of the Chinese and Americans. In concluding an address before the American Life Underwriter's Association, Dr. Hunter said, "Taking the population of the United States as a whole, I believe that a better adjusted diet, with less animal food, would result in a lower blood pressure and in greater longevity with an equal ability to carry on their occupations."[9]

In view of the facts cited in this paper, is it not reasonable to believe that the general use of the soybean in this country would tend to lessen the mortality rate from intestinal infections and many other acute and chronic disorders, and to increase individual life expectation?

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10-17-37

SPECIAL FEATURES OF THE BATTLE CREEK SANITARIUM

BILL OF FARE

It Is Unique

On no other table have first appeared so many new and wholesome foods and food preparations which later became known and used throughout the civilized world. The Battle Creek menu is the result of more than 50 years' research and experimentation in the dietetic and culinary laboratories of the Battle Creek Sanitarium and the Battle Creek Food Company. Among the special features which have given to the Battle Creek bill of fare its superlative excellence and commanding influence are the following special characteristics:

It Is Biologic

That is, every food is selected with reference to its adaptation to meet the body's requirements and its complete freedom from unwholesome properties. Nothing is permitted to appear upon the ~~Sanitarium table~~ which is in the smallest degree objectionable from a health standpoint. ~~On the other hand,~~ great pains is taken to provide an unusual variety of appetizing and palate-satisfying nutrients of the highest quality obtainable.

It Is Balanced

Every bill of fare is carefully arranged and studied by a group of experienced food experts to make sure that everything needed to meet both general and special nutritive needs is provided.

The Calorie Balance

As a pioneer in dietary progress, the Battle Creek Sanitarium was first to place upon its tables a bill of fare showing the energy values of each article of food served. ~~Its bills of fare are still unapproached~~ in the thoroughness and completeness of this feature which enables each guest

to regulate with accuracy his food intake at each meal, ~~thus facilitating~~ weight control and complete nutrition.

The Vitamin Balance

Avitaminosis, or vitamin deficiency, is now recognized as one of the most common and perhaps the greatest of all causes of disease. ~~Our expert~~ dietitians have all received special nutrition laboratory instruction and ~~have had special training in~~ correcting vitamin deficiencies.

Very few natural foods contain all the vitamins required for normal maintenance. Only by carefully studied combinations, ~~based upon expert~~ knowledge of the vitamin contents of foodstuffs and of available vitamin concentrates may these defects be made good, ~~The Battle Creek Sanitarium~~ bill of fare is ~~altogether~~ unique in providing means whereby a complete vitamin ration can be provided for each guest no matter what may be his vitamin need.

The Food Mineral Balance

The importance of the careful balancing of the foodstuffs for lime, iron, copper and other food minerals, demonstrated in recent years ~~by the nutrition laboratory~~, is fully recognized ~~both~~ in providing a bill of fare which makes these food essentials available, ~~and in the careful adjustment~~ of each bill of fare to individual needs by trained dietitians.

It Is Safe

The widespread invasion of this country in recent years by tropical intestinal parasites, especially the pernicious Endameba histolytica, has made every public eating place a health risk. For this reason, very great care is taken to insure absolute purity and freedom from contaminants of any sort not only by careful inspection but by thorough sterilization. All uncooked foods such as fruits and green vegetables which are served without cooking are thoroughly washed and then sterilized by immersion in a highly

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efficient but harmless germicide similar in character to that which is in universal use for the purification of public water supplies.

Kitchen Sanitation

The spacious dining room of the Sanitarium which seats 1,000 guests is served from a kitchen laboratory which is unsurpassed for completeness, efficiency and elegance of its equipment, all made of untarnishable white metal, with walls and ceiling of white glass tile, cooled by ventilating fans and kept so immaculate by meticulous care that never even a suggestion of an unpleasant odor can be detected.

In addition to the careful sterilization of the food, food handlers, waiters and dish washers are required to sterilize their hands when they come on duty and to repeat the sterilization whenever contact is made with any possible source of contamination by contact of the hands with unsterilized foods or food containers, the person, clothing or other source of infection

A diner may rise from a meal at this table with full assurance that his meal has been complete and scientifically balanced in relation to every food principle, mineral and vitamin, and completely free from any contaminant.

TABLE TABOOS

The Biologic Code, made by the promoters of the Sanitarium one of its foundation stones, necessitates the creation and maintenance of taboos which exclude from our tables certain articles which customarily appear at public and private eating places, not because of prejudices, but because they are known to be injurious to health and objectionable on physiologic grounds.

The mustard pot, the pepper box, curries and other hot condiments are responsible for many cases of gastro-duodenitis, gall bladder and other digestive disorders and so must be excluded from a strictly physiologic bill of fare.

Hot sauces such as Worchestershire, horse-radish, pepper sauce, etc. are universally recognized as enemies of gastric health and hence have no place in invalid stomachs or on a sanitarium bill of fare.

Vinegar, like other condiments, is in no sense a food. It is a chemical solution,-- diluted ascetic acid, an irritant which congests and harms the stomach and wholly arrests the digestion of starch. Vinegar lowers the alkalinity of the blood and lessens vital resistance. Cucumber pickles have no nutritive value. They are indigestible and saturated with the unwholesome acetic acid of vinegar. Hence they are strictly taboo here.

Rich puddings and pastries are excluded from this bill of fare because of their indigestibility and unwholesomeness. Their place is more than supplied with attractive entrees and delicious fruit desserts.

Tea and coffee, the well recognized foes of sound sleep and healthy nerves, are replaced by wholesome and refreshing beverages rich in those magic nerve building vitamins which serve as igniting agents which tone up the nerves and keep resistance high.

Meats of all sorts, flesh, fish and fowl, are taboo because they are biologically foreign to the human bill of fare and are often found to be responsible for grave ailments of important vital organs because of their lack of vitamins and necessary food minerals. Besides, all fresh meats are grossly infected with colon germs and other parasites which are incompatible with health through causing intestinal putrefaction and auto-intoxication.

Wine, beer and all intoxicants are conspicuously absent from the Sanitarium tables because of their anti-vital properties and their utter lack of health promoting value.

The cigar and cigaret, like the other taboos mentioned, have never been

seen in the Battle Creek Sanitarium dining room. This is one of the few public dining places from which the poisonous weed in all its forms is strictly excluded.

JHK-b

11-14-37

RHEUMATIC FIBROSITIS

By Dr. John Harvey Kellogg

Fibrositis is a term not in common use, though one that has been known in medical literature for more than a hundred years. The meaning of the term is inflammation and thickening of the fibrous or binding tissues, of the body. When the sheath of a nerve, the thin and delicate membranes which surround and hold the muscles in their places, the covering of the bones, and other binding tissues, become inflamed, swollen and thickened, the results are stiffness, pain, swellings, and various deformities. Pain is an almost constant accompaniment of this sort, among which various recent writers enumerate the following: neuritis, neuralgia, chronic rheumatism, muscular rheumatism, myositis, myalgia, sciatica, growing pains, lumbago, gluteal fibrositis (myositis of the buttocks), tennis elbow, intercostal neuralgia, cardialgia and panniculitis. "Gordon defines fibrositis as an inflammatory reaction of the fibrous supporting tissues of the body to extraneous poisons, which may be bacterial or toxic. It affects particularly the soft tissues, muscles, fascial coverings, aponeuroses, origins and insertion of muscles, inter-muscular septae, fibrous capsules of joints, bursae, ligaments and nerve sheaths. In all these sites the essential pathological process is thought to be of the same nature. The affected tissues are swollen, indurated or nodular, and very tender. The affected or overlying muscles are usually spastic. In more chronic cases there may be wasting from pain, stiffness and disuse."

Another author (Telling) described this disease "as inflammatory exudation into the fibrous tissues in almost any situation in which fibrous tissue is found."

CAUSES OF RHEUMATIC FIBROSITIS

Among the most universal of the various causes to which this disease is attributed, first of all, should be mentioned cold and dampness, giving rise to chilling. It is true that these weather conditions do not affect all persons, so there must be predisposing causes, such as hereidtary predisposition and physical conditions, such as fatigue or exhaustion from any cause. The well known influence of prolonged exposure to cold, and especially a current of air causing chilling by evaporation, are striking examples of the pernicious influence of causes which produce disturbances of the skin and circulation.

Pemberton has shown that in fibrositis there is "a narrowing and irregularity of the capillary vessels, a slowing down of the blood flow, and also that the vessels of the capillary bed are less responsive to changes of temperature. It is this lack of response, with poor interchange between the tissues and fluids of the body, that predisposes to an attack of fibrositis." (May)

Injuries of various sorts are a common predisposing cause of fibrositis. This is particularly true of injuries to the joints from falls, prolonged standing, sprains, fatiguing exercise. People who use one hand or arm in prolonged and taxing work, while making little use of the other, often suffer from rheumatism of one side, the idle limb being exempt. Faulty posture in sitting at work, as in the case of most typists, bookkeepers, writers, seamstresses, watch repairers and wood engravers, often gives rise to fibrositis, or rheumatism, in the back, stiff neck, lumbago and even sciatica.

High-heeled shoes with flexible "shanks" cause faulty standing, which puts the leg muscles under abnormal strain, causing conditions of the muscles and thighs which predispose to the development of fibrositis in the form of myositis, sciatica, neuralgia, backache, lumbago, and so-called subluxation of the sacro-ileac joint.

Fibrositis much more often attacks persons of middle or advanced age than young persons, at least in its chronic forms. The active factor, in the opinion of many eminent clinicians, is the circulation in the blood stream of toxic substances which, in the majority of cases, no doubt owe their origin to putrefaction changes in the colon, the result of the prolonged retention of body wastes and food residues.

Very convincing evidence has been developed in recent years that the tissues often become sensitized to colon poisons, so that fibrositis may be regarded in many cases as an allergic reaction, such as frequently occurs to certain foods or other protein-containing substances.

Focal infection is a well known cause of fibrositis in the form of neuralgia, rheumatism, myalgia, or myositis, and the tissue tenderness of fleshy people known as fibrositis. Diseases tonsils which exude pus when pressed upon and often throw off small secretions from pockets filled with septic matter, may be a source of infections which may not only affect the joints but the nerves of the face, and even the motor parts, sometimes give rise to diseases of the eye and the ear, causing loss of sight or hearing.

Focal Infections: Cervicitis in women, or infection of the neck of the womb, and infection of the prostate in men, are very common causes of fibrositis in various forms, particularly lumbago and sciatica. An attack of fibrositis leaves a strong predisposition to another attack.

Diseased teeth and other mouth infections, as well as tonsillitis, is a frequent cause of fibrositis, although no doubt many teeth have been sacrificed unneeessarily in pursuing this well known cause of this disease.

The idea that rheumatism and rheumatic disorders in general are due to inflammation of the connective, or fibrous tissue, is by no means new. This view was put forward by Scudamore more than a hundred years ago (1827) but only recently has become generally accepted.

Symptoms of rheumatic fibrositis do not develop universally, but in patches, at points where resistance is low, where some predisposing strain or other injury has existed. At such points, bacteria may be able to obtain a foothold rather than elsewhere.

When the muscles are affected, so-called muscular rheumatism, the disease area may often be readily located by the sense of touch. The tissues feel thickened, tense, or swollen, and are generally sensitive to pressure. Nodules varying in size from a pea to that of an almond, may frequently be felt either in the fascia or membranous tissues covering the muscles or imbedded in the muscle tissue. They are most frequently found in the buttocks, and back, and in the large muscles at the side of the neck.

The pain associated with fibrositis, so called rheumatic pain, neuritis, neuralgia, etc., is often so disturbing as to make life very miserable for the tortured victim. Pain at the back of the head, pain running down one or both arms, pain between the shoulders, often accompanied by tenderness on pressure, is frequently observed. The pain of neuralgia in the arm or the sciatic nerve, is often so intense as to give rise to real agony. While the pain sense is greatly exaggerated, the sense of touch may be impaired, giving rise to a sensation of numbness. Associated with the pain, if long continued, there

may be marked atrophy or shrinking of the muscles. These conditions are often referred to as neuritis, whereas the true neuritis, in which the whole nerve trunk is involved, is rare. Burning, numbness, even intense itching, are frequently experienced. The pain often seems to originate from certain definite points at which nodules are likely to be found.

In cases of chronic fibrositis, there is a pronounced tendency to frequent cramps, or spasms, in the muscles. These are most likely to occur in the calf of the leg or the back of the neck. The cramps may come spontaneously, or may occur whenever the muscle is put under a slight strain.

Edema, with pitting of the skin, is frequently observed, especially along the "shin" of the lower leg. This is most likely to occur in fleshy persons.

The nodules sometimes observed in healthy persons are doubtless hold-overs from previous attacks of fibrositis, and are liable to become foci of future attacks.

Joint stiffness, likely to be observed first in the fingers when dressing in the morning, or muscular stiffness or soreness when rising after sitting for sometime, is a very common early symptom of fibrositis. The larger muscles are often first affected.

The headache common in rheumatics is another symptom of fibrositis. It is often worse in the morning, and is felt particularly in the back of the neck and the occipital region of the head. Small tender nodules can often be felt in the neck. Tenderness in one or both sides of the scalp is another common symptom. Such persons often find difficulty when lying down to rest, in disposing the head in such a way as to get the comfort necessary for sleep.

The back is one of the most common seats of pain, especially in women, often the result of a reflex from a retroverted or infected uterus. When the womb is retroverted, it is naturally usually congested, frequently two or three times its size in normal position. Such a condition gives rise to reflex pain low down in the back, which is not caused by fibrositis or rheumatism, but is often associated with this condition.

The Treatment of Fibrositis

Fortunately, this condition is always susceptible to improvement, and may be cured when taken thoroughly and vigorously in hand in its incipient or early stages. First of all, the cause must be removed. If a focal infection, such as a diseased tonsil, a diseased tooth, or any other infected area is discoverable, its removal may be followed by prompt disappearance of the disturbing symptoms. This happy result does not always follow, however.

Although a focal infection may be presented, it may not be the cause of the fibrositis, Even though it may have been the original cause, the secondary infection may have become so widespread and so deeply seated, that removal of the fibrous seat of the disease

Rest is necessary when the pain is increased by movement but rest may

Fibrositis involves dangers which must be encountered by careful, graduated exercise and measures to prevent deformity from disuse of joints. This important fact should be remembered. Many persons who are still on their feet have been made complete cripples by confinement in bed, with a full diet and neglect of the precautions necessary to prevent loss of ability to use the limbs. Joints must be moved to their full range daily. Appropriate exercises must be taken daily. The diet must be carefully regulated and adapted to

the patient's inactive state. Thorough and daily emptying of the colon is highly essential. A change of flora, so as to completely suppress putrefaction, is a measure of the utmost importance, since toxins from the intestinal canal are justly regarded as a very common cause of rheumatic fibrositis. Daily, hot, sweating baths continued for a few days and repeated at frequent intervals; local, hot applications applied two or three times a day, with protection of the affected parts by warm bandages between applications, are the most effective measures of relieving pain and building up resistance, by improvement of the skin circulation, which is perhaps the most essential of all means of increasing resistance to temperature disturbances, one of the most potent factors of this disease.

Massage, sun baths, air baths, diathermy, infra-red light, are other measures which are found highly effective in combating this most common and crippling malady. Most of these measures have been in successful use at the Battle Creek Sanitarium for more than fifty years, and with such successful results that that institution and others employing similar methods, are much frequented by rheumatics, especially during the winter season, when climatic conditions are most favorable for the development of rheumatic affections.

Next month, Good Health readers will be presented with an illustrated article giving instruction for the treatment of various special forms of fibrositis, such as neuralgia, sciatica, different forms of neuritis, etc.

12-17-37

WHAT PHYSIOTHERAPY CAN DO FOR CHRONIC INVALIDS

Hippocrates, the father of scientific medicine, based his practice upon the study of Nature's methods of healing. His teaching and methods were largely forgotten during the Dark Ages, but in modern times have been revived by eminent medical practitioners and teachers who by extensive research and clinical observations have developed a distinct medical philosophy now known as physiotherapy, which recognizes Nature, or rather the creative intelligence which, as an eminent German teacher once said, "Creates and maintains and hence must be able to heal."

This natural method, known as physiotherapy, avoids empiricism and treats the sick man himself rather than his disease, directing curative efforts to the relief of the patient by removing the cause of his suffering rather than by hiding his symptoms by the use of narcotics, so-called tonics, stimulants, etc. This does not mean the total discarding of drugs or other artificial means of treatment, but simply the use of all remedies of whatever sort in such a way as to aid Nature in establishing normal conditions by removing the causes of disturbance and aiding Nature in her work of repair and restoration when damage has been done.

As curative measures, this system makes use of the great forces of Nature, those powerful agencies heat, light, fresh air and a great variety of appliances by which these great sources of energy may be harnessed and utilized in helping the body to fight disease by increasing its powers of resistance, developing immunity, regulating and accelerating the great vital processes of circulation, digestion and metabolism and promoting the recuperative and rejuvenating influence of sleep, rest and nutrition.

The Battle Creek Sanitarium has for more than half a century been recognized as a center in which the various natural or physiologic curativ

methods were brought together, scientifically studied, validated and correlated into a complete therapeutic system which has become widely known as the Battle Creek Idea or the Battle Creek System, and as such today finds representation, more or less complete, in every part of the civilized world.

The purpose of this article is to present a brief summary of what may be done for chronic invalids, especially those suffering from ailments which do not yield to ordinary treatment and because of this are sometimes considered incurable. In general it may be said that thoroughgoing physiotherapy, efficiently and perseveringly employed, offers some help in practically every case that is not actually moribund.

Without attempting to enumerate all the many great advantages offered chronic invalids by a well equipped institution, the following are of such great importance as to be especially worthy of mention:

Rheumatism

This disease is probably responsible for more suffering and more crippling of human activities than any other and it involves so many inconveniences and hindrances to bodily activities that although it does not apparently actually very greatly shorten the duration of life, it certainly makes life seem longer. It is estimated that there are several million persons in the United State suffering more or less constantly from rheumatism in some one or more of its varied forms, practically all of whom might be benefited and a large percentage cured by the rational methods of physiotherapy. Of the many hundreds of drugs which have from time to time been recommended for rheumatism, scarcely one is known to be really beneficial and many are not only useless but more or less harmful; and physiotherapy is now almost universally recognized by those who have made a special study of rheumatism, as the only really efficient remedy

for the great number of painfully crippling ailments which are known to be rheumatic in character. In this group of disorders are included not only joint diseases of various sorts, but painful diseases of the muscles or so-called muscular rheumatism, sciatica, lumbago, and neuritis.

The intensive study which has been given to this disease within the last few years has cleared up many of the mysteries with which it was formerly enshrouded and has revealed it to be a disorder of the connective tissue elements of the body in which are included not only joints-- cartilage, synovial membrane, ligaments, tendons and bones-- but muscles, connective tissue, fatty tissue and even the deep skin tissues. All of these are subject to inflammatory changes manifested by swelling, induration, pain, stiffness, soreness, etc., conditions in the relief of which physiotherapy is wonderfully adapted.

Heat, light, electricity, massage, baths, sun bathing, diet regulation and carefully graduated exercises,-- these and many other measures when properly applied, together with protection of the patient from exposure to cold, and proper feeding, with change of the intestinal flora or suppression of intestinal toxemia, afford relief in practically all cases and in cases not too far advanced they effect a complete cure. Within the last 20 years, more than 00,000 rheumatics have been treated at the Battle Creek Sanitarium with the following results: Cured and improved, _____ per cent; unimproved, _____ per cent. Of course when a case of rheumatism has been neglected until the joints are ossified, tendons contracted and bones and cartilages destroyed, a complete cure is not possible; but even in cases of this sort, with very rare exceptions, very material and much worth while improvement may be secured by the use of modern expert methods. It is highly important that the general public should be informed so that an early diagnosis may be made and the pr

measures taken to prevent the development of the crippling deformities which result from neglect.

Change of the Intestinal Flora

The researches of Bouchard, a pupil of Claude Bernard, the great French physiologist, the later researches of Christian Herter of New York and the more recent experiences of numerous investigators have demonstrated the baneful influence upon the body of the poisons produced by putrefactive changes in the too long retained food residues in the colon.

Metchnikoff demonstrated that the poisons produced by the colon bacillus and other colon germs cause hardening of the arteries and charged them with being the cause of old age. He considered the colon a useless organ which might be dispensed with advantageously, and Sir William Arbuthnot Lane, the famous London surgeon, conceived the idea of removing the colon and demonstrated by numerous successful operations that it could safely be dispensed with and often with great benefit because its crippled condition had made it more harmful than useful. But the operation was hazardous and not always successful and ultimately abandoned though for a time quite popular.

The savants of the Pasteur Institute of Paris made the ingenious suggestion to displace the poison making germs of the colon by harmless germs which produce lactic acid instead of bad smelling and pernicious poisons produced by the colon bacillus and its allies. This simple and rational method was received with great enthusiasm by the profession, but unfortunately failed because the germ selected to displace the colon bacillus proved to be unable to live in the colon. A fortunate discovery by Dr. Tissier of the Pasteur Institute, an assi of Metchnikoff, made it possible to displace the trouble making b of the colon by a harmless acid-forming organism, the Lactobac'

acidophilus. This organism was found by Tissier in the colons of infants where it appears shortly after an infant begins to nurse and drives out completely the pernicious colon and other germs with which the colon becomes infected shortly after an infant's birth. So long as the infant is breast fed, the colon bacillus and other bad germs remain absent, but through wrong feeding and neglect to move the bowels with sufficient frequency the pernicious colon germs begin to appear in the stools of older children and adults.

This harmless microorganism, provided by nature for the protection of the intestinal canal against infection, was first brought to this country by Dr. Kellogg of the Battle Creek Sanitarium, where, under the direction of Dr. Tissier, then consulting bacteriologist to the institution, it was first successfully used for changing the intestinal flora, saving the life of the infant son of a physician who was apparently dying from cholera infantum. This method has been in constant use at the Sanitarium since 1912 and has been successfully employed in the treatment of many thousands of persons suffering from intestinal infections and chronic ailments resulting therefrom.

Chiefly through the efforts of Professor Rettger of Yale, the Lactobacillus acidophilus has become widely used throughout the United States. The disfavor into which it has fallen is due to faulty technic. Improved methods which have been developed make possible an improving change of the intestinal flora in every case. It is by this method that the quintuplets were cured of a severe intestinal infection. They are kept in good health by continuing the use of the Battle Creek method of changing the intestinal flora.

Diabetes

The discovery of insulin has proved a boon of priceless to sufferers from diabetes and has saved thousands from death

diabetic coma, but nevertheless each United States census report shows a steady increase in this country in the number of persons who die from diabetes as well as the mortality rate, for insulin does not remove the cause of the disease, but only supplies a hormone which the damaged pancreas of the diabetic is unable to produce in sufficient quantity.

Physiotherapy seeks to combat the cause of this grave disease as well as to make good the deficiency. By a few weeks of treatment and training every diabetic can be educated in methods whereby under home conditions he may successfully combat his malady and lead a comfortable and useful life by carrying out a carefully arranged health program adapted to his particular case.

Insomnia

Nearly a century ago, Schüller demonstrated the high efficiency of purely physical or physiotherapeutic measures in combating insomnia by diverting blood from the head into other parts of the circulation. This method was used with great success by Fleury in an institution for the treatment of the insane in a suburb of Paris and was introduced into this country to the Battle Creek Sanitarium 60 years ago where it has been in continuous highly successful use ever since, and through physicians and nurses sent out from the institution has been introduced into institutions for the insane throughout the United States. In many state institutions these methods have largely taken the place of hypnotic drugs of all sorts because of their far greater efficiency and their curative effects, while drugs do not cure but tend to increase the difficulty because of their disturbing effects upon digestion and general nutrition and their depressing effect upon the heart and nervous system. In one large private institution for the treatment of mental disorders which is universally regarded as a model institution of its kind, not a single dose of s

producing medicine has been given since the introduction of the physiotherapeutic methods first used in this country at the Battle Creek Sanitarium were introduced now more than 25 years ago.

In many cases the effects of physiotherapy are almost magical. It may be said without exaggeration that practically all cases of insomnia may be successfully treated without the use of drugs. The extensive use of sleep-producing drugs no doubt is in many cases a potent cause of so-called nervous breakdowns and even mental disease which might have been prevented by the use of physiologic measures.

Heart Disease

The increasing mortality from diseases of the heart and blood-vessels, which has now reached the enormous total of more than a hundred thousand cases annually in this country alone, was formerly attributed to the too rapid pace of our modern life; but that this view is incorrect has been shown by Dublin of the Metropolitan Life Insurance Company. Whatever the cause may be, clinical experience in individual cases has clearly shown that by a thorough application of the potent curative measures comprised in a broadly planned physiotherapeutic program this high mortality rate might be greatly lowered. In the treatment of many thousands of cases of chronic cardiac disease at Battle Creek, the superior efficiency of measures which suppress the causes of excessive cardiac work and exposure of the heart and bloodvessels to the damaging influences of toxic substances circulating in the blood has been clearly demonstrated. In many cases persons who have retired from business with no expectation of resuming business activities because of myocarditis have found themselves so greatly improved after a few months of treatment that they w able to resume business activities as actively as ever.

Said a 67 year old head of a great industrial organization on presenting himself for examination, "I am suffering from myocarditis. I have been examined by the leading heart specialists of the world. They all tell me there is no hope and that in two or three years I will be in the cemetery." Through a change of habits and the application of thoroughgoing physiotherapy, the patient was in three months so far recovered he resumed his onerous business duties and ten years later, still active as ever, looking ten years younger instead of older, he presented himself again, declaring, "You have added 20 years to my life," and his appearance amply justified the statement.

A diagnosis of heart disease does not necessarily imply an early demise. This dreaded malady is in a high degree amenable to control through rest, or slowing of its progress by the discovery and elimination of causes in individual cases, by increasing the efficiency of the skin heart, an important but much neglected auxiliary of the blood pumping mechanism, improvement of vital resistance and general nutrition by correct regimen and training of the heart to increased efficiency and carefully graduated exercises after a preliminary rest when indicated. Cases are exceedingly rare in which very notable improvement may not be secured, and in cases in which morbid changes are not too far advanced, an improved condition closely approaching the normal may be attained. Even angina pectoris yields to the potent restorative influence of natural or physiologic therapeutics which cooperate with the vital energies which create and maintain the body in health and are able to restore it to more or less complete soundness when diseased.

High Blood Pressure

The heart is a highly developed and exceedingly efficient forc pump which maintains pressure in the arteries for the purpose of pr

blood through the millions of vessels smaller than the finest hairs which intervene between the arteries and the veins. When these minute arterioles and capillaries become narrowed through spasms or otherwise obstructed, more pressure is needed, and to lower the pressure without removing the obstruction is to do the patient harm, for a continuous adequate blood supply is absolutely essential for the maintenance of normal functioning and even life. When the cause is removed, the blood pressure will fall to normal because the higher pressure is no longer needed. When the blood pressure is raised, the cause must always be sought and removed if possible. Fortunately cases are very rare in which this can not be accomplished to an appreciable extent, generally to a notable degree and sometimes completely. Even cases of so-called essential hypertension generally yield to a searching inquiry for causes and application of efficient properly directed regimen and treatment.

Constipation

There is no panacea for constipation nor for the "stasis" or stagnation associated with it and which sometimes exists even when bowel movements are frequent and apparently not obstructed. As a result of chronic constipation, the colon becomes crippled in a variety of ways for which there is no universal remedy, but all of which may be relieved by the application of the special means indicated in each particular case. The colon is inefficient not because it is "lazy" or paralyzed, but because it is crippled by obstacles which fortunately may be removed. The particular obstacles to normal bowel functioning present in any individual case, thanks to the ability which modern X-ray methods give us to "look inside," make possible the discovery of the causes which crippled the colon, the obstacles which stand in the way of normal bowel movement. The so-called barium meal, the barium enema and a careful study of the patient's symptoms and the history of his cas

will show the way to relief in every case. There need never be a failure in any case in which all the now known means of relief are available.

The most commonly used means for relief of constipation is a drug of some sort which forces the bowel to act in spite of the fact that its failure to perform its function is due to its crippled or obstructed condition. In the physiologic method of treating constipation, the use of such means is the last thing to be considered and the rarest to be used. Relief must be obtained by helping the colon by removing obstructions and energizing its weakened muscles and facilitating its efforts to evacuate its contents.

By making use of this knowledge of the "mechanical factors" involved, in normal colon activity, it is now possible to reform the crippled and errant colon and to restore it to normal functioning by a careful process of training, in other words reforming the colon instead of sacrificing and removing it as was practiced some years ago by Dr. Arbuthnot Lane who himself now endorses and employs the method of reform rather than of removal.

Obesity

Every case of obesity or overweight requires attention. An excessive accumulation of fat is not merely an inconvenience. It is a menace to health and life. Even so small an increase of weight as 10 per cent in persons over 50 years of age materially shortens life, which is clearly shown by life insurance statistics. The majority of persons who are much overweight in time become diabetic. Heart disease, high blood pressure and angina pectoris are other grave troubles which await the overweight person.

Physiotherapy is especially applicable in cases of obesity, the treatment of which by drugs has often led to most disastrous results. Careful regulation of the diet with exercise, baths and other natural methods wi+ judicious management will effect a cure in every case.

Fasting is not a safe remedy for obesity. A fat person as w a lean one needs daily an adequate supply of protein, food minerals,

and bulkage. So the overweight person should not undertake a complete fast, but should only cut out fats, reduce carbohydrates to a minimum and should take a full ration of all the other elements of a balanced diet.

But judicious exercise is necessary as well as fasting. It is essential not only to assist in unloading the surplus fat by increasing the rate at which the fat is burned, but to energize the heart, strengthening its muscle fibers, as otherwise the heart will be weakened by the fasting together with other muscular structures of the body.

The physiologic way of reducing overweight involves no discomforts or hardships whatever. The discomforts and even hardships suffered by persons who undergo an ordinary "fasting cure" are due to the instinctive demands of the body for something which is lacking in the daily food supply. This is quite unnecessary. When care is taken to make a scientific adjustment of the bill of fare to the individual condition, the dietary is entirely satisfactory and involves no inconvenience whatever. Such a plan of treatment of course requires that care should be taken to supply an abundance of bulk as well as other necessary food elements.

Avitaminosis

Avitaminosis, a newly discovered disease which is almost universal in civilized countries, is easily arrested by scientific regulation of the diet by balancing it for vitamins. This requires expert knowledge of vitamins, their normal effects and the results of absence or deficiency and the vitamin content of foods. Cases of avitaminosis are not always altogether curable by an adequate or even a super adequate intake of vitamins since sometimes the injuries resulting from vitamin insufficiency are more or less permanent as in the case of rickets, the deformities produced by lack of vitamin D and the dwarfed growth resulting from a deficiency of vitamin F and most of the other vitamins.

Proper vitamin feeding requires special knowledge which at t'

time only the most expert dietitians possess.

Battle Creek Sanitarium patients find the vitamin content of foods indicated on their bills of fare with an indication of the necessary daily intake. The foods served are prepared in such a way that by proper combination, as indicated by a diet prescription, not only an adequate supply of vitamins may be obtained, but the surplus needed to make good existing deficiencies.

Digestive Disorders, Gastric Ulcer, Etc.

The researches of Pavlov opened the door to a rational plan of diet and treatment of digestive disorders which had not previously existed. By the aid of a well equipped nutrition laboratory and a research laboratory of the Pavlov type conducted by an assistant of the famous physiologist there have been evolved at Battle Creek rational physiologic methods of dealing with all classes of digestive disorders not involving malignant disease which bring to Battle Creek annually several thousand persons suffering from disorders of this class who rarely fail to find relief by the thoroughgoing measures employed.

Allergy

Asthma, skin diseases and various other troubles which involve sensitization to certain substances rarely fail to find relief even though previous attempts have failed. Success in these cases is not to be attributed to the superior skill of physicians or attendants, but to the fact that the simple physiologic methods employed, the care to eliminate so far as possible exciting and predisposing causes of the disorders found in each individual case, the general health promoting effects of simple and natural living, especially the suppression of intestinal putrefactions and a super abundant supply of vitamins, sun bathing, contact with fresh air day and night and general health building activities of every sort in an optimistic environment

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