

# D I E T E T I C S .

## DIET FOR HYPO'S.

Lecture to Post-Graduate Class by J. H. Kellogg, Sept. 3, 1903, 5:00 P.M.

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Let us have a little review.

According to Deves and Kuttner, a small amount of salt has the effect to increase hyperpepsia, increasing chlorin formation, and acid secretion; but when it is used in large quantities, it has a depressing effect, the opposite effect--lessens the antiseptic power.

Have any of you thought of any other causes of hypopepsia?

Hemorrhage is a cause of hypopepsia. How? By reducing the chlorides in the blood,--the elements out of which pepsin and hydrochloric acid are made, are diminished, and consequently we may have hypopepsia from lack of material. This condition is found not only in cases of persons who have suffered from hemorrhage after a surgical operation, but in cases of chronic menorrhagia, and post-partum hemorrhage, and the effect upon the digestion is so marked that for a long time it was held by physiologists that women always suffer from hypopepsia during the menstruation. I think I was the first one who proved that was not true. I had quite a series of observations made several years ago for the purpose of settling that question, and I found that was not the case. I found that there was during the menstrual period a deficient amount of hydrochloric acid, but it was not hypopepsia. It was claimed that there was no formation of hydrochloric acid at all during that period, but it is only in cases of acute menorrhagia that this occurs. The influence of hemorrhage on hypopepsia is so marked that for some years physiologists were of opinion that women always had hypopepsia during the menstrual period, that there was no formation of hydrochloric acid. That was universally claimed when



That was universally claimed when I first began to study this subject, and I made a series of observations that showed that it was not true. However the amount of hydrochloric acid is diminished.

Shock is another cause of hypopepsia; exhaustion still another. You can readily see why these would cause hypopepsia; the heart action is diminished, and all the vital processes are slow, so that the metabolic activities of various sorts would be diminished in intensity.

Starvation involves hypopepsia. A person who starves becomes at first very hungry; but after the first two or three days they do not suffer any inconvenience. The stomach is not forming hydrochloric acid, and they do not get hungry. I have been told this by a number of persons who have starved for long periods; that after the first two or three days they had no inconvenience at all. The desire for food seems to be, at any rate in some cases, produced by the development of hydrochloric acid in the stomach at or about the time when mealtimes arrive. Many, many persons feel a gnawing at the stomach, a weak, wretched feeling from the presence of hydrochloric acid there. When food is taken it relieves this feeling.

Infancy is another normal condition in which hypopepsia is present. All infants have hypopepsia, and young children. That is the reason why young children are so subject to bowel trouble, and indigestion, why their digestion becomes so easily upset, because all infants have slow stomach digestion. Intestinal digestion is much better in children than stomach digestion, because milk, which is the normal food, is not digested in the stomach. It is liquified in the stomach, but the complete digestion of milk takes place in the small intestine. This is a well-known fact. The milk that is digested in the stomach must be redigested in the small intestine before it is ready for absorption.



So the child's stomach is necessarily weak in digestion. Pepsin and hydrochloric acid are there in sufficient quantities to dissolve the milk curds, liquify them; then they pass on into the small intestine.

Hypepepsia is present in cancer, and it may go so far as a-pepsia. There are cases of cancer in which hyperpepsia is present. It is not safe to say that a case can not be cancer when you find there hydrochloric acid, or acidity due to hydrochloric acid, because there are cases in which this is present. It is only when the cancerous disease has extended so far with the gastric glands, they undergo complete degeneration; the hydrochloric acid is entirely absent, and a-pepsia; then the pepsin being absent, other foreign ferments take up their abode there, sarcin, and molds, and iodines, and the stomach becomes fairly normal. In cachexia hypepepsia is present because of the generally diminished metabolic activity. This is almost universally true in Addison's disease, in exophthalmic goitre. I have observed the same thing in myxedema. I have no doubt it is commonly present in cachexia; and in all cachexia patients I have seen, chronic, auto-intoxication was found, you always find hypepepsia. I do not know whether these cases of hypepepsia are the cause; it may be the cause or the consequence, either one.

Hypepepsia is present also in melancholia. Find a patient suffering from melancholia, you will always notice a thickly coated tongue, very foul tongue, and you could not have that sort of soft, flabby, foul ~~marking~~ tongue in hyperpepsia. The hyperpeptic tongue is almost universally red, and very seldom coated.

Bright's disease is another malady in which the patient has hypepepsia. I found this so constantly that I am satisfied myself that hypepepsia precedes Bright's disease, and is not the cause of it. Bright's disease is the result of the loss of intestinal antiseptics,



and the large quantity of ptomaines which are thrown into the circulation; and this is the cause of Bright's disease. I do not see any reason why Bright's disease should produce hypopepsia.

In cirrhosis of the liver and in chronic leukemia and pernicious anemia, in all cases of pernicious anemia we have had here in the institution, we found very marked hypopepsia, and generally apepsia in very severe cases. We have had some very marked cases. I looked at a case of secondary anemia the other day. It was a case of fibroid uterus, and profuse menorrhagia. The pepsin was down very low, perhaps only about a third of what it ought to be. In pernicious anemia, I think hypopepsia is primary, and is the cause of the anemia. The loss of intestinal antiseptics results in the formation of toxins in the alimentary canal, which dissolve in the blood, and that is why the blood is so rapidly destroyed. Boyx, an eminent French investigator, has made a very interesting observation of cirrhosis of the liver; it is more common in dyspeptics than in any other class. He has written a very interesting book entitled "The Liver of Dyspeptics". He shows that toxin is free in the alimentary canal in cases of loss of intestinal antiseptics; so in gin liver; but when alcohol produces gin liver, it does not produce it by indigestion first. His book is a very interesting little volume, and gives a great number of interesting cases which he reports. He made observations with extract of feces with the cultures of the colon bacillus also with their extracts of feces. He found that this disease was capable of producing cirrhosis of the liver and also of the spleen.

Tuberculosis or consumption is always accompanied by hypopepsia. Hypopepsia always exists in fever. This accounts for the fact that fever patients and tubercular patients have such an abhorrence of fat; it is because they have hypopepsia and are unable to digest fat well. There is also an instinct in that. Pawlaw showed that when the supply



of acid is too low, it is difficult to get the patient to eat fats. Fats would be injurious to his digestion. Fats lessen the secretion of the hydrochloric acid, and as the secretion is already too low, there is an instinctive opposition to the use of fats. There is nothing more abhorrent to a fever patient than fat. He likes juicy and saccharine fruits. Anything that has fat about it is perfectly abhorrent to a fever patient. Consumptives are very much opposed to them also.

More recent studies of the subject of obesity have shown that it is always accompanied by a form of indigestion--some form of indigestion. I could not say whether or not it has yet been differentiated. I am studying it to see if I can not find out just what the form is. It is in the intestines. We have a very fat woman here who has apepsia. We have another florid lady who had ~~hyperpepsia~~ hyperpepsia; so this situation is at present quite indefinite. I think it must be intestinal.

Cases of enteroptosis and gastric dilatation are likely to come from hypopepsia sooner or later. Women generally suffer from hypopepsia much more frequently than from hyperpepsia, while men are more apt to have hyperpepsia than women--very much more. In gastric dilatation the stomach processes are already slow; food is left too long in the stomach, and this brings on gastroptosis, or collapse of the stomach.

There are certain things besides these various disorders with which hypopepsia is connected. Habits of life; over-eating; eating coarse foods produce hypopepsia. Eating when the gastric glands are tired out; rapid eating causes the food to be swallowed in such large chunks; it is retained in the stomach so long, and the stomach becomes exhausted. Eating coarse foods, the foods are retained in the stomach too long, and the gastric glands are, of course, irritated, so that they produce an excessive quantity of gastric juice, and this in time exhausts



and wears out the glands, and produces hypopepsia as a secondary result.

There is no objection to graham bread, because the flakes of bran in the bread become softened very soon;--a bran poultice is one of the most quieting, soothing applications we can make; so this bread becomes mucilaginous, soft, like a bread poultice. It slightly tickles the stomach, and there is no danger at all from this excoriating effect pictured by the manufacturers of wholewheat flour; there is nothing in it at all.

Pickles and condiments, first perhaps produce hyperpepsia, I have no doubt they do for I have frequently found persons suffering from hyperpepsia who were large users of pickles and condiments, and I have <sup>doubt</sup> noted that this has given rise to hyperpepsia, but later hypopepsia results from the exhaustion of the gastric glands.

Cane sugar produces hypopepsia by over-stimulating all the glands of the stomach, and exhausting them. The use of ices produces hypopepsia by compelling the stomach, rendering it anemic, so lessening the formation of the stomach fluid. They have neither acid nor pepsin.

The use of meat in liberal quantities gives rise to hypopepsia; the stomach becomes exhausted from the large amount of work required of it. Pawlaw has shown that the stomach always forms gastric juice exactly adapted to the foodstuff that is furnished to it, and when an animal has been fed upon potatoes for some time, the gastric juice formed is quite different from that formed when the animal is fed upon meat. When an animal is fed upon meat again after having been fed upon potatoes ~~for~~, some days elapse before the stomach is able to make the acid required for the digestion of the meat. That is highly interesting. Potatoes require gastric juice of a much less degree of acidity. If meat has been used by the human stomach for a long time, , the stomach does not naturally digest beef, so the stomach is over-stimulated, the gastric



glands are exhausted to an abnormal degree, and the result is that after while the stomach is worn out, and apepsia is the result. We have a lady in the house now; an hour or two ago I saw her. In some cases we find a million germs to every C. C. of gastric juice. This lady has been here fourteen weeks. We gave her another test meal a couple of days ago, and it was reported to me today that the gastric juice is entirely free from bacteria, absolutely free. There is no acid formation, no gas formation, so that there were absolutely no germs there. She appreciated the great improvement in her health; she knew she was better. She felt wonderfully better. The total acidity had increased from 64 to 98, more than 50%. There is no free hydrochloric acid found, but you would not expect any hydrochloric acid at all after the amount of hydrochloric acid was more than was required for producing combined chlorin. The hydrochloric acid was all used up; it was all comprised in the combined chlorin. There must be acid enough to form the combined chlorin entering into combination.

As the gastric activity declines, the amount of bichlorin as well as the free hydrochloric acid declines. When the stomach improves, the first thing is increased combined chlorin, and later, increased free hydrochlorin. That is the way it usually goes.

I might mention <sup>this woman has</sup> ~~some~~ of cirrhotic liver. The liver is very much contracted. She has gotten over her cachexia entirely, and is wonderfully better. Says she feels better every treatment she takes.

The use of soda and saleratus is a very common cause of hypopepsia. The use of soda biscuit, saleratus biscuit, and baking powder--these chemical substances used quite freely--the effects are not immediately experienced, so they are used continuously year after year. Experiments upon dogs have shown that they produce hypopepsia.

The continuous and free use of lime water for babies aggravates



hypepepsia. It is very bad for babies, because they already have hypepepsia, and by giving them this limewater, the hypepepsia is increased. The child's digestion is very seriously impaired. Lime is a very strong agent, and not only combines with the free hydrochloric acid, but also effects an acid-alkali combination. When you put soda into your gastric fluid, the soda will enter into combination with the free hydrochloric acid, but also with the combined albumin, the combined chlorine, so you find present in the form of chloride of sodium, all the chlorine that was left. It is not only what had already entered into the digestive process, but that which was free. So you see when lime water is given to a baby, it may seriously interfere with the digestion, because not only was there free hydrochloric acid there which combines with it; it also combines with the chlorine which has entered into combination with the albumin, and with the casein, so it seriously interferes with the digestion. I mention this because it is such a common problem. Lime water should never be used at all. Use instead, oatmeal water, or barley water. Oatmeal water is preferable to anything else I know of. Rice water is also excellent. I believe that potato gruel, gruel made from potato meal would be very much better still. I think a porridge made with baked potatoes, made into a very fine porridge, boiled for a long time, would be very much preferable to any cereal preparation. Cereal starches, for some reason which seems unreasonable, although it is a fact, the cereal starches are much less easily digested, and less easily assimilated than the vegetable starches. We do not know how to account for that and we do not like it, but it is so. We can not help it. I tried for a long time not to believe it, because it was so uncomfortable. Bake the potatoes, take them out of their skin, make them into a puree, and cook thoroughly. The reason for that is that you obtain all the soluble elements which are wholesome, and you drive off the unwholesome elements of the potato. If you take the skin of the



potato and chew it up--the skin of a baked potato--you will find you have got something in your throat that smart.

I will say in reply to a question, there is no potassium salts in potatoes; no lime in milk; no calcium salts in milk. It is not the acidity of the milk that does the harm. The thing that does the harm is that there are formed in the stomach large, hard, tough curds. Milk is a live, vital fluid. When you take a bone and burn it, you get phosphate of lime, carbonate of lime, and other lime salts, but they are not in combination. The elements are there, but they are in organic, vital, combination. So it is with the salts in milk; they are in vital combination. I wrote some discussions several years ago with reference to the use of phosphates for bones. ~~Phosphates~~ Phosphates were used to an enormous extent. Phosphates dug out of the ground in large quantities. There is no sense in that. There has never been any evidence at all that these phosphates are assimilated. You read Bunge on the subject. He is all right. He shows that not more than a grain or two can be assimilated in twenty-four hours. Not more than a grain and a half of most phosphates can be dissolved and absorbed. We are getting a much larger quantity of phosphates than that through the food we eat, but these food phosphates, or preparations of lime are in organic combination. The doctors now use organic phosphates, organic iron, etc. They are trying to get these elements in the same form in which they are provided by nature. There is iron found in an egg, but it is not in the form of iron. The iron atoms are there, but in combination with other elements. There is a number of large organic molecules, just the same way that there is ~~starch~~ oxygen in starch. The starch is not a bit like oxygen, and you might have a combination of oxygen, hydrogen, and carbon and it would not take the ~~place~~ place of starch at all. You want to get the carbon in the starch in the body to burn



as fuel. When the blood and bones of an animal are burned, phosphates are found, but it is only the residuum, you see. Hydrogen has been given off, and carbon has been thrown off; but that is no evidence that the carbon would be food, or that the phosphate would be food. Bunge states the truth straighter than anybody has done before on that subject, because chemists for the last thirty years have been trying their best to prove that the life processes are mere chemical processes, and trying to account for all life processes by chemical laws, chemical philosophy, and physical law--fats and other fluids were taken up into the blood by osmosis. They are not taken up by osmosis at all. The lacteals are not opened into the intestine. If they were they would discharge into the intestine instead of discharging into the veins near the heart. Attach a tube to the lacteals, and you would find the lacteal fluid would rise in the tube. They are not open. This has been known for the last eight or ten years.

One can easily overcome an appetite for putting salt on potatoes. Just a little more than thirty years ago I tried the experiment of ~~keeping~~ living absolutely without salt for several years, and I did it without any impairment in health at all. I did not use a particle of salt on potatoes or anything else. They were quite palatable, indeed, without salt. At the present time, I really enjoy potatoes very well indeed without salt. The fact is I like them a little better with salt. The appetite for salt is kept alive by the use of bread and other things which contain salt, but if one could entirely discontinue the use of salt he would get along all right, because there is ~~salt~~ in all foods all the salt that is necessary.

I think wild animals visit salt licks once or twice a year for the purpose of getting rid of certain parasites that are passing into their intestines. When Seton-Thompson was here, I told him I had a new variety of deer I wanted to show him. I said to him, "Did you ever



see a ~~single~~ deer that would not eat salt?" He said he never did. He said, "I do not believe there are any such deer." I took him out and showed him my drove of deer. I offered the deer a pan of ~~salt~~ apples with a dish of salt in the middle. They ate the apples but would not touch the salt. He said, "That is simply a matter of preference; they prefer the apples to the salt." I took the apples away and offered them the salt, but they would not touch the salt. I put it on the ground; two or three of them came along and smelled of it; one touched his nose to it; they all walked away and left it. Seton-Thompson was very much surprised. I tried our family horse. I did not eat any salt myself, and I did not give him any salt. I found he got along all right, and after two years, you could not induce him to eat salt. I gave him one time some ground feed. I moistened it up and I put a little salt in it, and he positively refused to eat it, and went hungry rather than eat his moist food; absolutely would not eat it. He looked at me and whinnied, and I had to go and prepare a new dinner for him. At one time, for a period of about ten years, I used to have here in the Sanitarium, what was called a radical table, and a liberal table, and a conservative table.

At the liberal table they were able to get some things that were not the very best. At the conservative table, they had a little salt in their food, and a little milk. But at the radical table, there was no milk, salt, sugar--it was strictly a natural dietary. I always ate at the radical table, with them, and I got along first rate. I think salt is entirely abnormal and injurious; but we will take that up when we come to it a little later.

Hutchinson has gone into the subject quite thoroughly. What he says upon the subject is very interesting. I wrote some articles on the subject twenty-seven or twenty-eight years ago. Elder Geo. I.



Butler and I had a pitched battle over it. He took me to task because I did not eat salt, and wrote a series of articles recommending salt from a Bible standpoint. We had a very interesting discussion. It ran through several months in the Good Health.

We will consider some other things productive of hyperpepsia. Alkaline mineral waters--numberless people have ruined their digestion by the use of mineral waters, especially in connection with meals. A great number of people take a glass or two of mineral water after each meal, and after while get themselves sick, get hypoepsia, ruin the digestion, ruin the intestines. Seltzer water, laxative waters are particularly injurious, and result in gastric catarrh and hyperpepsia. I should mention also drugs in general as being productive of hypoepsia, as especially certain drugs. Bromide of potash, all bromides are extremely pernicious. The use of opium, belladonna, cocain, alcohol,--all of these drugs,--tea, coffee, theobromin,--these are all highly productive of hypoepsia. Find a person who has been accustomed to these drugs for a considerable length of time, and they are certain to have hypoepsia. People who use drugs for a considerable length of time always have hypoepsia. Tobacco is also productive of hypoepsia. Many persons think they have been benefited by using tobacco. They have hyperpepsia, and they find it lessens their hyperpepsia, and they think they are surely helped by it.

The use of decomposing foods is another cause of hypoepsia. Cheese, prime meats--these exhaust the antiseptic power of the gastric juice, and produce after while headaches; decomposition takes place, the alkaline products and the soluble albumin neutralize the gastric juice. Chronic gastritis is always accompanied by hypoepsia, which sooner or later becomes apepsia.

Pawlaw showed that there were two kinds of gastric juice.



There is the psychic gastric juice, and the chemical gastric juice. The psychic gastric juice is formed as the result of reflex

I think that is the principle effect that comes from bitters.

There is a large number of cases of hypopepsia in which there is a large amount of pepsin present, and hydrochloric acid absent. There are many cases, probably, in which pepsin is almost entirely absent, or very little present. Acid does not act at all with the pepsin.

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HEALTHFUL DISHES, *and**diet for the sick*

The truth embodied in the old German proverb, "As a man eateth so is he", places in the hands of the cook almost absolute control of the health of the household. To bad cookery must be attributed a great share of the stomachic ailments which have become so nearly universal in civilized countries.

By permission of the author, we have selected the following recipes for the preparation of healthful foods from "Science in the Kitchen", by Mrs. E. E. Kellogg,\* the most elaborate treatise on healthful cookery to be found in any language.

~~PREPARATION OF SAUCE:~~

**Grape Sauce.**— Prepare by heating the juice of grapes to boiling, and slightly thickening with a little corn-starch, previously rubbed smooth in a small quantity of cold water. The proportions should be one tablespoonful of the starch to one pint of the fruit juice. If the juice is quite thick, dilute it with one-third water. Cook until thickened. Sweeten if desired. Strain to remove any lumps, and serve while hot. A dressing of hot grape-pulp may be used instead of this sauce, if preferred.

The juices of other fruits may be used in a similar manner.

**Bolled Wheat.**— Select new wheat with plump kernels; that which is freshly cut and well rubbed from the chaff is best for this purpose. Look it over carefully, wash, and put to cook in five times its measure of cold water. Let it come to a boil, and cook gently until the grains burst open, and they can be readily mashed between the thumb and finger. This will require from four to ten hours, according to the age and variety of the wheat used. Less time will be needed if the grain is soaked over night. When done, it should be full of a rich, thick liquor. If necessary, add more boiling water, but stir as little as possible.

Raisins or ~~Banted~~ currants may be added to the wheat, or other fruits may be used with it.

*(footnote)* \*Published by Modern Medicine Co., Battle Creek, Mich.



**Wheat-Meal or Graham Mush.**— Good flour is the first requisite for making good mush. Poor flour cannot be made into first-class mush. Flour made from the best white winter wheat is perhaps the best. It may be used either sifted or unsifted, as preferred. The proportion of flour and liquid to be used will necessarily vary somewhat with the quality of the flour, but in general, three parts of water to one of flour will be needed. Too much flour not only makes the mush too thick, but gives to it an underdone taste. Sprinkle the dry flour rapidly into boiling water (which should not cease to boil during the process), stirring continuously until a thick porridge is obtained. It is well to have it a little thinner at first than is desirable for serving, as it will thicken by cooking. Cook slowly at least one hour. A longer time makes it more digestible.

Left-over graham mush, spread on shallow tins, and simply heated quickly in a hot oven, makes a palatable dish.

Raisins previously steamed, or figs steamed and cut into pieces, or dates, may be used in connection with this dish.

**Oatmeal Mush.**— Heat a quart of water to boiling in the inner dish of a double boiler, sift into it one cup of coarse oatmeal, and boil rapidly, stirring continuously until it thickens; then place in the outer boiler, the water in which should be boiling, and cook three hours or longer.

**Boiled Rice.**— Rice to be boiled in the ordinary manner requires two quarts of boiling water to one cupful of rice. It should be boiled rapidly until tender, then drained at once, and

set in a moderate oven to become dry. Picking over and lifting lightly occasionally with a fork will make it more flaky and dry. Care must be taken, however, not to mash the rice grains.

**Steamed Rice Not to be**— Look over and thoroughly wash one cup of rice. Drain, spread thinly on a shallow dish, and dry in the oven. Even should it become a trifle yellowed, no harm is done. Introduce the rice into two cups of boiling water, place in a steamer, and allow it to cook one hour without stirring. Rice should not be cooked in a vessel where it will be more than three inches deep, or the weight of the upper part will crush the lower, and make it soggy.

*Fig. Sauce.*

A sauce prepared by stewing a cupful of chopped figs in a pint of water, to which has been added a tablespoonful of sugar, until they are homogeneous. If the figs do not readily soften after stewing for a time, rub them through a colander or vegetable press, to make a smooth sauce. Put a spoonful of ho fig sauce on each dish of rice. Raisins, oranges prepared by separating into sections, and peaches pared and sliced, are all excellent with rice.



**Browned Rice.**— Spread a cupful of rice on a shallow baking-tin, and put into a moderately hot oven to brown. It will need to be stirred frequently to prevent burning and to secure a uniformity of color. Each rice kernel, when sufficiently browned,

should be of a yellowish brown, about the color of ripened wheat. Steam the same as directed in the recipe for steamed rice No. 2, using only two cups of water for each cup of browned rice. When properly cooked, each kernel will be separate, dry, and mealy. Rice prepared in this manner is undoubtedly more digestible than when cooked without browning.

Excellent served with a sauce prepared by pressing canned or freshly stewed blackberries through a fine colander, to remove the seeds.

**Macaroni with Tomato Sauce.**— Break a dozen sticks of macaroni into two-inch lengths, and drop into boiling water. Let it boil until perfectly tender. In the meantime, prepare the sauce by rubbing a pint of stewed or canned tomatoes through a colander to remove all seeds and fragments. Heat to boiling, thicken with a little flour, a tablespoonful to the pint being the requisite proportion. Add salt and, if desired, a half cup of very thin sweet cream. Dish the macaroni in individual dishes, and serve with a small quantity of the sauce poured over each dish.

Macaroni may also be served with a cream or egg sauce. It is also excellent served with a gravy of lentils prepared by cooking half a pint of brown lentils ~~in~~ until tender. When about half done, add to flavor the lentils, one medium sized onion, cut in halves. When tender, remove the onion, and rub through a colander. Add sufficient boiling water to make about a pint and a half in all. Reheat to boiling, and thicken with a little flour.

**Hop Yeast.**— Put half a cup of loose hops, or an eighth of an ounce of the pressed hops (put up by the Shakers and sold by druggists), into a granite-ware kettle; pour over it a quart of boiling water, and simmer about five minutes. Meanwhile stir to a smooth paste in a tin basin or another saucepan, a cup of flour and a little cold water. Line a colander with a thin cloth, and strain the boiling infusion of hops through it onto the flour paste, stirring continually. Boil this thin starch a few minutes, until it thickens, stirring constantly, that no lumps be formed. Turn it into a large earthen bowl, add a tablespoonful of salt and two of white sugar, and when it has cooled to blood heat, add one-half cup of lively yeast, stirring all well together. Cover the bowl with a napkin, and let it stand in some moderately warm place twenty-four hours, or until it ceases to ferment or send up bubbles, beating back occasionally as it rises; then put into a wide-mouthed glass or earthen jar, which has been previously scalded and dried, cover closely, and set in a cool place. Yeast made in this manner will keep sweet for two weeks in summer and longer in winter.



**Boiled Potato Yeast.**—Peel four large potatoes, and put them to boil in two quarts of cold water. Tie two loose handfuls of hops securely in a piece of muslin, and place in the water to boil with the potatoes. When the potatoes are tender, remove them with a perforated skimmer, leaving the water still boiling. Mash them, and work in four tablespoonfuls of flour and two of sugar. Over this mixture pour gradually the boiling hop infusion, stirring constantly, that it may form a smooth paste, and set it aside to cool. When lukewarm, add a gill of lively yeast, and proceed as in the foregoing recipe.

**Raisin Yeast.**—Cover a cup of raisins with water, and keep in a warm place until fermentation takes place. Make potato yeast in the usual way, using the water from the raisins instead of lively yeast to start the fermentation.

**Milk Bread with White Flour.**—Scald and cool one pint of unskimmed milk. Add to the milk when lukewarm, one fourth of a cup, or three tablespoonfuls, of liquid yeast, and three cups of flour. Give the batter a vigorous beating, turn it into a clean bread-bowl or small earthen crock, cover, and let rise over night. In the morning, when well risen, add two or three cupfuls of warm flour, or sufficient to knead. Knead well until the dough is sufficiently elastic to rebound when struck forcibly with the fist. Allow it to rise again in mass; then shape into loaves; place in pans; let it stand until light, and bake. If undesirable to set the bread over night, an additional tablespoonful or two of yeast may be used, to facilitate the rising.

**Water Bread (Sanitarium Cooking-School Method).**—To make one loaf of bread, dissolve a two-cent cake of compressed yeast in a pint of lukewarm water, or if liquid yeast be preferred, use one-half cup of yeast to one and one-half cups of water, with flour sufficient to make a dough just stiff enough to be easily kneaded. Knead thoroughly, using no additional flour save, if necessary, the merest quantity to dust the board. Having secured a well-kneaded, smooth dough, put it into a warm crock, cover, and set to rise, keeping it at a temperature of about 85° F.

Allow it to rise until twice its original bulk, then turn it over in the crock, and allow it to rise again. When well risen the second time, turn over again. After this rising, with as little manipulation as possible form it into a roll about the size of the arm, and long enough to fit the baking-tin. Allow it to rise once more, and then bake.

**Fruit Roll.**—Take some bread dough prepared as for milk bread, which has been sufficiently kneaded and is ready to mold, and roll to about one inch in thickness. Spread over it some dates which have been washed, dried, and stoned, raisins, currants, or chopped figs. Roll it up tightly into a loaf. Let it rise until very light, and bake.

**Rye Bread.**—Prepare a sponge over night with white flour as for water bread. In the morning, when light, add another tablespoonful of sugar, and rye flour to knead. Proceed as

directed for the water bread, taking care to use only enough rye flour to make the dough just stiff enough to mold. Use white flour for dusting the kneading board, as the rye flour is sticky.

**Graham or Wheat-Meal Bread No. 3.**—Mix three pounds each of graham or wheat-meal and Minnesota spring-wheat flour. Make a sponge of one and a half pints of warm water, one-half cake compressed yeast, well dissolved in the water, and flour to form a batter. Let this rise. When well risen, add one and a half pints more of warm water, one-half cupful of New Orleans molasses, and sufficient flour to knead. Work the bread thoroughly, allow it to rise in mass; then mold, place in pans, and let it rise again. The amount of material given is sufficient for four loaves of bread.

*best*



**Graham Puff.**— Beat together vigorously until full of air bubbles, one pint of unskimmed milk, the yolk of one egg, and one pint and three or four tablespoonfuls of graham flour, added a little at a time. When the mixture is light and foamy throughout, stir in lightly and evenly the white of the egg, beaten to a stiff froth; turn into iron cups, and bake in a rather quick oven. Instead of all graham, one-third white flour may be used.

**Graham Gems.**— Into two cupfuls of unskimmed milk, ice-cold when practicable, stir gradually, sprinkling it from the hand, three and one-fourth cupfuls of graham flour. Beat vigorously for ten minutes or longer, until the batter is perfectly smooth and full of air bubbles. Turn at once into hissing-hot gem irons, and bake in a hot oven. If preferred, the batter may be prepared, and the dish containing it placed on ice for an hour or longer; then well beaten and baked. Graham gems may be made in this manner with soft water instead of milk, but such, in general, will need a little more flour than when made with milk. With some ovens it will be found an advantage in baking these gems to place them on the upper grate for the first ten minutes or until the top has been slightly crusted, and then change to the bottom of the oven for the baking.

**Rye Puff.**— Beat together the same as for whole-wheat puffs one cupful of milk, one tablespoonful of sugar, and the yolk of an egg. Add one cupful of good rye flour mixed with one-half cupful of graham flour, and stir in lastly the well-beaten white of the egg. Bake at once in heated gem-irons.

**Bean Gems.**— Prepare the gems in the same manner as for whole-wheat puffs, using one-half cup of milk, one egg, one cup

of cooked beans which have been rubbed through a colander and salted, and one cup and one tablespoonful of white flour. A little variation in the quantity of the flour may be necessary, dependent upon the moisture contained in the beans, although care should be taken to have them quite dry.

**Breakfast Rolls.**— Sift a pint and a half of graham flour into a bowl, and into it stir a cupful of very cold thin cream or unskimmed milk. Pour the liquid into the flour slowly, a few spoonfuls at a time, mixing each spoonful to a dough with the flour as fast as poured in. When all the liquid has been added, gather the fragments of dough together, knead thoroughly for ten minutes or longer, until perfectly smooth and elastic. The quantity of flour will vary somewhat with the quality, but in general, the quantity given will be quite sufficient for mixing the dough and dusting the board. When well kneaded, divide into two portions; roll each over and over with the hands, until a long roll about one inch in diameter is formed; cut this into two-inch lengths, prick with a fork and place on perforated tins, far enough apart so that one will not touch another when baking. Each roll should be as smooth and perfect as possible, and with no dry flour adhering. Bake at once, or let stand on ice for twenty minutes. The rolls should not be allowed to stand after forming, unless on ice. From thirty to forty minutes will be required for baking. When done, spread on the table to cool, but do not pile one on top of another.



Very nice rolls may be made in the same manner, using for the wetting ice-cold soft water. They require a longer kneading, are more crisp but less tender, than those made with cream. With some brands of graham flour the rolls will be much lighter if one third white flour be used. Whole-wheat flour may be used in place of graham, if preferred.

**Sticks.**—Prepare and knead the dough the same as for rolls. When ready to form, roll the dough much smaller; scarcely larger than the little finger, and cut into three- or four-inch lengths. Bake the same as rolls, for about twenty minutes.

ing at the same time, so as to incorporate as much air as possible, until the dough is too stiff to be stirred; then knead thoroughly, form into rolls, and bake.

**Fruit Rolls.**—Prepare the rolls as directed in the recipe for breakfast rolls, and when well kneaded, work into the dough a half cup of Zante currants which have been well washed, dried, and floured. Form the rolls in the usual manner, and bake.

**Water Biscuit with Egg.**—Beat together until thoroughly mingled, the yolk of an egg and one-half cup of ice-cold water. With this incorporate flour enough to make a dough which will clear the board without its being dusted with flour, but not so stiff that it will be difficult to shape. Work and shape as directed above. Bake one hour in a well-heated oven. The dough may be formed into rolls or sticks, if preferred.

**Cream Crisps.**—Make a dough of one cupful of thin cream, and a little more than three cups of graham flour. Knead until smooth, then divide the dough into several pieces, and place in a dish on ice for an hour, or until ice cold. Roll each piece separately and quickly as thin as brown paper. Prick with a fork, cut with a knife into squares, and bake on perforated tins until lightly browned on both sides.

**Graham Crisps.**—Into one-half cupful of ice-cold soft water, stir slowly, so as to incorporate as much air as possible, enough graham flour to make a dough stiff enough to knead. A table-spoonful of sugar may be added to the water before stirring in the flour, if desired.

**Fruit Crackers.**—Prepare a dough with one cup of cold sweet cream and three cups of graham flour, knead well, and divide into two portions. Roll each quite thin. Spread one thickly with dates or figs seeded and chopped; place the other one on top and press together with the rolling-pin. Cut into squares and bake. An additional one fourth of a cup of flour will doubtless be needed for dusting the board and kneading. A dough prepared with ice water and the yolk of egg, as directed for water biscuit, may be used for these crackers, if preferred.

**Nut Crisps.**—Mix together thoroughly one and one-half cups of coarse graham flour and one-half cup of hickory-nut meal, prepared by pressing the chopped meats of nuts through a fine colander. Make into a rather stiff dough with ice-cold water, knead well, roll into a sheet as thin as brown paper, cut with a knife into squares, and bake on perforated tins until lightly browned on both sides.

**Nut Sticks.**—Larger quantities of the flour and hickory-nut or pecan meal used in the same proportion as above may be prepared into a dough in the same manner. After being well kneaded, it may be divided and shaped by rolling with the hand into a long roll about the size of the little finger. Cut into three- or four-inch lengths, and bake on perforated tins for about twenty minutes.

or an equal amount of nut butter.



**Baked Beans.**—Pick over a quart of best white beans, and soak in cold water over night. Put them to cook in fresh water, and simmer gently till they are tender, but not broken. Let them be quite juicy when taken from the kettle. Season with salt and a teaspoonful of molasses. Put them in a deep crock in a slow oven. Let them bake two or three hours, or until they assume a reddish brown tinge, adding boiling water occasionally to prevent their becoming dry. Turn into a shallow dish, and

**Stewed Beans.**—Soak a quart of white beans in water over night. In the morning, drain, turn hot water over them an inch deep or more, cover, and place on the range where they will only just simmer, adding boiling water if needed. When nearly tender, add salt to taste, a tablespoonful of sugar if desired, and half a cup of good sweet cream. Cook slowly an hour or more longer, but let them be full of juice when taken up, and never cooked down dry and mealy. They are also excellent prepared thus without the addition of cream.

**Mashed Beans.**—Soak over night in cold water, a quart of nice white beans. When ready to cook, drain, put into boiling water, and boil till perfectly tender, and the water nearly evap-

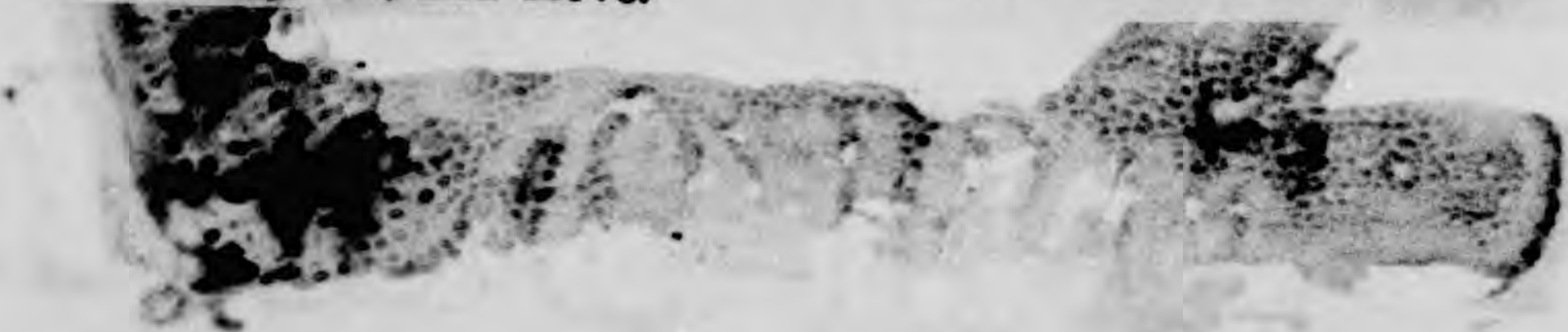
**Savory Lentils.**—Take equal quantities of cooked brown lentils that have been rubbed through a colander to remove the skins, and the crumbs of unfermented bread. Moisten with a little rich milk or cream, season with salt and a very little powdered sage, pour into a baking-dish and bake until well browned in a moderate oven. A tomato sauce makes a nice accompaniment. A meal prepared by rubbing chopped English-walnut meats through a colander, added to the savory lentils, in the proportion of one cup of nut meal to the pint of lentils, just before being put in the oven to brown, makes a very palatable dish. When the nut meal is used, water may be used to moisten the lentils, if preferred.

**Cooked Peanuts.**—Shell the raw nuts, and blanch by pouring boiling water over them. After they have stood a few minutes, the skins can be easily rubbed off. Add to a pint of the blanched nuts about two quarts of water, put them into a bean-pot; heat to boiling; then place in a slow oven and cook for nine or ten hours. When done, they should be soft, mealy, and rich with juice. No seasoning except a little salt will be required.

**Peanut and Tomato Purée.**—Prepare and cook the peanuts as directed in the preceding recipe. When done, rub them through a colander. To three cups of the peanuts, add one of strained stewed tomato; season with salt; reheat and serve.

**Baked Bean Soup.**—Soak a half pint of white beans overnight. In the morning turn off the water, and place them in an earthen dish with two or two and one-half quarts of boiling water; cover and let them simmer in a moderate oven four or five hours. Also soak overnight a tablespoonful of pearled tapioca in sufficient water to cover. When the beans are soft, rub through a colander, after which add the soaked tapioca, and salt

**Black Bean Soup.**—Soak a pint of black beans overnight in cold water. When ready to cook, put into two and one-half quarts of fresh water, which should be boiling, and simmer until completely dissolved, adding more boiling water from time to time if needed. There should be about two quarts of all when done. Rub through a colander, add salt, and reheat. When hot, turn through a soup strainer, add two or more teaspoonfuls of lemon juice, and serve.





**Split Pea Soup.**—For each quart of soup desired, simmer a cupful of split peas very slowly in three pints of boiling water for six hours, or until thoroughly dissolved. When done, rub through a colander, add salt, reheat, and when boiling, stir into it two teaspoonfuls of flour rubbed smooth in a little cold water. Boil until thickened, and serve. If preferred, the soup may be flavored with a little celery or onion.

**Swiss Lentil Soup.**—Cook a pint of brown lentils in a small quantity of boiling water. Add to the lentils when about half done, one medium-sized onion cut in halves or quarters. When the lentils are tender, remove the onion and rub the lentils through a colander. Add sufficient boiling water to make three pints in all. Season with salt, reheat to boiling, and thicken the whole with four tablespoonfuls of browned flour, rubbed to a cream in a little cold water.

**Tomato and Macaroni Soup.**—Break a half dozen sticks of macaroni into small pieces, and drop into boiling water. Cook for an hour, or until perfectly tender. Rub two quarts of stewed or canned tomatoes through a colander, to remove all seeds and fragments. When the macaroni is done, drain thoroughly, cut each piece into tiny rings, and add it to the strained tomatoes. Season with salt, and boil for a few minutes. If the tomato is quite thin, the soup should be slightly thickened with a little flour before adding the macaroni.

**Vegetable Pea Soup.**—Cook one pint of split peas until dissolved. When nearly done, put to cooking one and one-half pints of sliced potato and one medium-sized onion, sliced thin. When tender, rub all through a colander, add water to make of

**Asparagus Soup.**—Wash two bunches of fresh asparagus carefully, and cut into small pieces. Put to cook in a quart of boiling water, and simmer gently till perfectly tender, when there should remain about a pint of the liquor. Turn into a colander, and rub all through except the hard portion. To a pint of asparagus mixture add salt and one cup of thin cream and a pint of milk; boil up for a few minutes, and serve.

**Canned Green Pea Soup.**—Rub a can of green peas through a colander to remove the skins. Add a pint of milk, and heat to boiling. If too thin, thicken with a teaspoonful of flour rubbed smooth in a little cold milk. Season with salt and a half cup of cream. A small teaspoonful of white sugar may be added, if desired.

Green peas may be used instead of canned, in their season. When they have become a little too hard to serve alone, they may still be used for soup, if thoroughly cooked.

**Cream Pea Soup.**—Soak three fourths of a pint of dried Scotch peas overnight in a quart of water. In the morning put to cook in boiling water, cover closely, and let them simmer gently four or five hours, or until the peas are very tender and well disintegrated; then rub through a colander to remove the skins. If the peas are very dry, add a little water or milk occasionally, to moisten them and facilitate the sifting. Just before the peas are done, prepare potatoes enough to make a pint and a half after being cut in thin slices. Cook the potatoes until tender in a small amount of water, and rub them through a colander. Add the potatoes thus prepared to the sifted peas, and milk enough to make three and one-half pints in all. Return to the fire, and add a small head of celery cut in finger lengths; let the whole simmer together ten or fifteen minutes, until flavored. Remove the celery, add salt and a cup of thin cream. This should make about two quarts of soup. If preferred, the peas may be cooked without soaking. It will, however, require a little longer time.



**Plain Rice Soup.**— Wash and pick over six tablespoonfuls of rice, put it in an earthen dish with a quart of water, and place in a moderate oven. When the water is all absorbed, add a quart of rich milk, and salt if desired; turn into a granite kettle and boil ten minutes, or till the rice is done. Add a half cup of sweet cream, and serve. A slice of onion or a stalk of celery may be boiled with the soup after putting into the kettle, and removed before serving, if desired only to flavor.

**Potato Soup.**— For each quart of soup required, cook a pint of sliced potatoes in sufficient water to cover them. When tender, rub through a colander. Return to the fire, and add enough rich milk, or part cream, to make a quart in all, and a

little salt. Let the soup come to a boil, and add a teaspoonful of flour or corn-starch rubbed to a paste with a little water; boil a few minutes, and serve. A cup and a half of cold mashed potato or a pint of sliced baked potato may be used instead of fresh material; in which case add the milk and heat before rubbing through the colander. A slice of onion or a stalk of celery may be simmered in the soup for a few minutes to flavor it, and then removed. A good mixed potato soup is made by using one-third sweet and two-thirds Irish potatoes, in the same manner as above.

**Pea and Tomato Soup.**— Soak one pint of Scotch peas overnight. When ready to cook, put into a quart of boiling water and simmer slowly until quite dry and well disintegrated. Rub through a colander to remove the skins. Add a pint of hot water, one cup of mashed potato, two cups of strained stewed tomato, and one cup of twelve-hour cream. Turn into a double boiler and cook together for a half hour or longer; turn a second time through a colander or soup strainer, and serve. The proportions given are quite sufficient for two quarts of soup. There may need to be some variation in the quantity of tomato to be used, depending upon its thickness. If very thin, a larger quantity and less water will be needed. The soup should be a rich reddish brown in color when done. The peas may be cooked without being first soaked, if preferred.

**Vegetable Oyster Soup.**— Scrape all the outer skin and small rootlets from vegetable oysters, and lay them in a pan of cold water to prevent discoloration. The scraping can be done much easier if the roots are allowed first to stand in cold water for an hour or so. Slice rather thin, enough to make one quart, and put to cook in a quart of water. Let them boil slowly until very tender. Add a pint of milk, a cup of thin cream, salt, and when boiling, a tablespoonful or two of flour, rubbed to a cream with a little milk. Let the soup boil a few minutes until thickened, and serve.





OPENING EXERCISES

of the

AMERICAN MEDICAL MISSIONARY COLLEGE.

At the Battle Creek College Chapel, Wednesday, Sept. 23, 1903,

8:00 P. M.

J. H. Kellogg, Chairman.

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"Let the Lower Lights be Burning" sung to open.

Prayer by Dr. J. F. Morse.

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The Chair: This is the ninth time that the American Medical Missionary College has appeared in public in opening its sessions. Nine years ago last spring the American Medical Missionary College did not exist. Dr. Paulson has been giving you a little sketch of the early history of our work. Some of you are familiar with it, although most of those who were here at that time, have passed through the school during the first four years of its existence, have passed on to other places. Very few of those are here at the present time, but there are a few representatives here who are engaged in the work.

I have always felt that the Lord was very good to us in sending us a splendid first class. The young men and women who entered the first class of the American Medical Missionary College had to have some courage, and a good deal of fortitude, and a good deal of grit, and a good deal of faith, because they had to walk through an unknown country, so to speak.

Here was a college that had not yet proved its ability to stand up as a school; had not yet established itself in the world; but these students came, and they said, "We will help



to make a great school of it by being good students." They did not exactly say that, but they did it. Our first class, as I said, were men and women who made the most of their opportunities. They had fewer facilities and fewer advantages than any class has had since; but I think they did not make any complaints they were very glad and thankful that they had as good a chance as they had.

Our school has been going on, gradually making a place for itself in the world, and has acquired recognition, not only in the different states of this country, but in other countries, and it is very gratifying to see that our work is coming to be known favorably in the greatest centers of civilization and of medical culture and learning in the world. I learned from one of the former students of our school not very long ago that he had recently had information from one of the greatest of the European universities that his work done here would be accepted as if it had been done there, and that a year's work in connection with the Battle Creek Sanitarium would be accepted in lieu of the fifth year which is required; which means that the Battle Creek Sanitarium has a reputable standing in the great university centers of Europe. If it had not, a year's work in connection with the Sanitarium would not be accepted, because it is necessary that all the work should be done in an institution that is recognized, and that means that the Battle Creek Sanitarium, as well as the American Medical Missionary College is recognized as a scientific medical institution.

Now that is a great thing; and why is it a great thing?-- Because in so many ways our School and our work at the Sanitarium is apparently in antagonism with so-called regular medicine. In so many ways, I say, it is apparently in antagonism; it stands



for physiologic therapeutics, and fifteen or sixteen years ago physiological therapeutics was in disrepute; it was looked upon as almost quackery; but there has come a mighty change over the world, so that the thing which was the most irregular has now come to be the most regular. We began to have some influence here about ten years ago;--about eight years ago an Episcopal clergyman of Cincinnati told me when he had been here visiting us--he was no longer located at Cincinnati, but went from here back there on a visit, and he met one of the leading professors in one of the leading medical schools of Cincinnati, Dr. Ramey, a man well-known throughout the whole united states, a most eminent surgeon. This gentleman met him, and Dr. Ramey said to him, "Well, how are they getting along there at the Sanitarium?" The gentleman said, "First rate, first rate," and he said, "I want to go there very much, and we have a lot of professors and doctors, and we have made up our minds that we will go up there and visit that institution; we are getting interested in it. Ten years ago we thought Dr. Kellogg was something of a quack, rather a quack, but now we are all coming his way." He did not see anything but Dr. Kellogg then, because he had not studied enough of these principles so that he could see that the thing I was standing for was not my way, the principles I was standing for were not mine; they were not my principles; they were simply great, advance truths in medicine that the medical profession in general in this country particularly had not yet come to see or recognize.

I was noticing in the address Dr. Billings delivered at the last meeting of the American Medical Association held last May, some ~~the~~ very significant remarks that are quite in line



with principles which are very prominent here in this work. I will just read a paragraph or two. Dr. Frank Billings, President of the American Medical Association, at its meeting at New Orleans last May, made, among other very significant and remarkable statements, this: "Drugs, with the exception of quinin in malaria, and mercury in syphilis, are valueless as cures." What do you think of that, now?--a sweeping statement made by such a man as Dr. Billings--"drugs are valueless as ~~any~~ cures", with the exception of just two drugs. I am sure there is no physician who has practiced medicine for years but has come across a good many cases of malaria which quinin did not cure. So it is evident from practice that all drugs are unreliable, even the two drugs he relies upon are not very certain, in fact, they are very uncertain. "The prevention and cure of most of the infectious diseases is a problem which scientific medicine must solve. What is true of the infectious diseases is also true of the affliction of mankind due to chemical influences within the body. We know but little of diabetes, of the primary blood diseases, or of the various degenerative processes of age and disease. We hopefully look to chemistry to reveal to us the cause of these and other conditions. Experimental medicine must be the means of removing the ignorance which still embraces so many of the maladies which afflict mankind." Don't claim to be able to cure things. "Not every student, nor every physician, can become an experimenter in applied medicine. Nevertheless, every physician must be so educated that he may intelligently apply the knowledge furnished him by experimental medicine in the cure of such diseases as can be cured. He will no longer juggle with the life of his



patient by an attempt to cure with drugs or otherwise, where no help is possible." "Juggle with the life of his patient"-- he knows, just as we know, how much of that things is being done, simply juggling with the life of the patient, giving the patient a drug not having any conception of what is going to happen, or how it can happen, simply to experiment, purely juggling. Now he denounces that; that is not scientific medicine; he takes a strong stand, the same stand that anybody in this school, Dr. Paulson, or myself take in relation to these matters. He speaks of the necessity of investigators, men who are scientific investigators, and who will study into all these problems with a true scientific spirit, with an appreciation of the fact that drugs are valueless as cures, and to find remedies which will cure.

"We may give the great practitioners who have taught clinical medicine their due meed of credit for their excellent, painstaking, unselfish efforts as teachers. They have added to the sum total of our clinical data, have utilized the knowledge of the pathologist and the physiologist in diagnosis, and have tested and judged the worth of therapeutic aids in the treatment of disease." What he says here is very significant. You will perhaps attend a clinic and hear some great teacher of medicine come out and make statements as to how this thing should be done, or that thing should be done, what treatment should be given, and so on. You note it down, and say, "I know now exactly what to do in such a case in future." "They", the great practitioners of medicine, "have added to the sum total of our clinical data, have utilized the knowledge of the pathologist and the physiologist in diagnosis, and have



tested and judged the worth of therapeutic aids in the treatment of disease. But as teachers they have not made students investigators or experimenters." Why?--Why, because their instruction was purely empirical. This man has rheumatism, give him salicylic acid; this man has malaria, give him quinin. So it has been, without being able to give any reason. Give this man quinin and opium for pneumonia. What for?--We do not know; we tried it and the patient got well, so we do it again. Perhaps the patient got well in spite of it instead of by the aid of it.

"Not one of the recent great discoveries in medicine has been made by such a man." That is, these great teachers, practitioners, these great clinical teachers,--not a single one of them ever made any great discovery in medicine. Why?--Because they are giving their attention to walking along in the old ruts, following old customs; are empirical, and they have made no great discoveries. I can not think of an exception to his statement that these great doctors--they are not the men who make the discoveries. I will tell you one man who made a great discovery, and that was an Austrian peasant, away off in Austrian Silesia, who could scarcely read, and could only barely write his name; that little peasant boy, only fourteen years old, made one of the most wonderful discoveries ever made upon the face of this earth in a curative way. Priessnitz, when he watched the deer getting down to bathe in the cold spring, saw the significance of what that animal did, and he said when he got hurt he would do the same; and so when he injured his arm, he put his arm in a wooden tub of water, and put a wet cloth on it, and when the doctors said he



could not get well, he saw himself getting well. That man made a discovery so great that there has been scarcely any improvement made upon it since. The wonderful things that that man wrought out in hydrotherapy are beyond anything else I know of in human invention and discovery; it is beyond anything I know of in its utility, in its value to the human race, as a means of relief of suffering, and saving human life. Less than twenty years after this peasant boy began his work--here were great practitioners practicing all over Europe, they came and sat at the feet of this peasant boy to learn how to cure maladies. That, my friends, is a wonderful lesson to us. "Not one of the recent great discoveries in medicine has been made by such a man. He has used as clinical material hundreds of cases of pneumonia, rheumatic fever, tuberculosis and chronic diseases by the score; his experience has taught him to recognize these diseases even when the clinical manifestations are obscure, but he is no more successful than when he began to practice, in saving the life of the patient with pneumonia, in preventing endocarditis in rheumatism, in curing tuberculosis, or in checking the advance of a chronic hepatitis." That is a wonderful confession isn't it? This great doctor and teacher feels that he can not cure any more than he could when he first began to practice; he is simply doing the same thing over and over and over again continually, one great repetition, not based on great cures, but based on popular credulity. "It is time, therefore, that the clinical teacher should have the knowledge necessary to carry on experimental investigation. . . . In addition to the clinical teachers, who will devote all their time to teaching

**AND THESE**



and research work in the special hospitals, there will be quite as much need for the clinical teacher, who is in private practice, in the general hospitals. Under his direction the student may himself investigate a hospital or ambulatory case, and undertake the care of the patient. His rich and varied experience in hospital and private practice will enable him to round out the student's college education. He will impart to the student a better idea of medicine as a whole. He will co-ordinate and arrange the isolated facts of clinical and laboratory investigation, and give them their true and relative value. He will teach the student the art of medicine; he will teach him that human sympathy and encouragement of the sick and dying are a part of his duty as a physician."

It is very interesting to see such a sentiment as that come from such a source. The true clinical teacher must be able to teach rational medicine, that is, what it means, and not only that; but he must be able to show his students by actual, practical experience that there is something besides medicine to be practiced in the sick room. We know that from experience. I got behind half an hour in my work this afternoon which kept me back half an hour from coming in here. Just as I was hurrying up to the surgical ward, as the ward had reached me that they were ready--just as I was going up to the ward I met one of the doctors, and the doctor said, "I have a patient I can not control over at East Hall." I said, "must I go over there?" The doctor said it was no use to go, she was going home, the hack was ordered and would be up in fifteen minutes, and she was going home. I had an interesting time



with that case. I felt impressed right off that something ought to be done about that case. Somehow I did not know the woman. I think I had seen her a minute in my office when she first came here, but I did not recollect a thing about it. I only knew she was going home, that she was going to leave the institution, going off, and I knew she came from a long ways off somewhere. The thought immediately siezed upon me that it would be a most terrible thing for that woman to go away no better than when she came,--go away with the impression that there was no help for her here; that there was no assistance for her,--I thought that would be a terrible thing. I was really in an agony of mind, for I did not know what ought to be done; I knew the doctors were waiting for me, and the patients were anxious--I knew all these other things were waiting. I said to the doctor, "Can't you get her over here so I can just see her a minute? May be I can persuade her to stay and we can help her." The doctor said it was impossible. I started up to the surgical ward, and said to a nurse on the way, "There is a woman in a certain room in East Hall. I must see her over here quick." I said "if you do not get her over here right away quick, you may lose your position." Now then you get that woman and bring her over here at all hazards." I felt just that much earnest about it. Away she went, and I hurried up to the surgical ward; and I had not been up there two minutes before to my great astonishment the nurse came in and said, "here is this patient." I said, "How in the world did you get her over here so quick?" "I was afraid I should lose my position," she said. I do not think that had anything at all to do with it. I think the Lord helped her to get that



woman over there. She was brought into a room just outside the surgical ward, and I found she was there, and I hurried out to see her. I found a very sick woman, a terribly sick woman. She had come from Sioux City in Dakota--a prominent woman there, and had come all this way suffering, and was still suffering, and suffering severely and in great distress, but had got so depressed, very depressed, distressed, and discouraged that she just made up her mind she would go all that long journey back again. When I looked at that woman, heard her remarks, saw her pale face, hollow eyes, I knew she was suffering, and it took a tremendous hold upon me. I spoke a few words with her and found she was not a Christian woman. I made up my mind I had got to help that case, and I could not see anything else to do but just to drop on my knees and the tears ran down my face, and I pled with the Lord to help her, and to help her mind, to help her out of that awful despair and distress that was there, and an awful burden rolled ~~off my~~ on my soul about her case. I know this thing, that the Lord can help that kind of a case, and that is the sort of thing that a doctor needs to do just as much as he needs to do anything else about a case; and I thank the Lord I had some faith, and hope, and courage, and I tried to encourage this woman to look up and take hold of the arm that is mighty enough to help her.

It did me a great deal of good when I saw that Dr. Billings had this same thought in his mind, that the doctor must do something more than simply distribute medical knowledge. He must know how to encourage the patient, the sick man. He says more than that. Notice what he says. "He will



teach the student that human sympathy and encouragement of the sick and dying are a part of his duty as a physician." I want to ask you, who but a Christian doctor can do such a thing as that? Dr. Billings recognizes this as a Christian duty for the doctor. That is one of the essential features of this school; in that particular thing this school is ahead of any other medical school on the face of the earth. It is a Christian school; it is in reality a missionary medical college. I thought when we first formed our school, first brought our school before the world, the medical profession--I thought there would be a great objection to that word of a "missionary" medical college. I found I was a coward enough to almost think perhaps we would better change the name, because, I said to myself, the medical colleges will be ashamed to put our missionary medical school on their list; they will be a little ashamed to publish the list with the word "missionary" in it. I have been ashamed ever since, that I ever entertained such a thought. I am very glad we did not make any change. I remember how some of my colleagues contended for that word "Missionary", that we must cling to it. I am very glad we did. We maintained that we must retain that word in our name, so that everybody would know that this is a Christian, missionary school.

"A medical school conducted on the high plane advocated must necessarily be under the control of a university. Such a medical school would cost an enormous amount of money, and this can be commanded only by the trustees of a university of the highest order. That the money for the purpose of establishing and maintaining university medical schools with research hospitals and university clinical courses will be forthcoming



can not be doubted. The world is awake to the great discoveries recently made in medicine. The wealthy men of this country have had their interest aroused as never before in reference to the possibilities and benefits which medical investigation will give to mankind. They now recognize that ~~the~~ they and all posterity will be benefited by every new fact discovered in medicine, and that physicians thoroughly and scientifically trained are necessary to conserve the health of the people.

"Three years ago Prof. W. W. Keen, in his address as President, deplored the fact that medical schools received relatively little aid in the form of endowments as compared with universities and colleges of philosophy, art and theology. Since that time several millions of dollars have been given for medical education and scientific research. The signs of the times point to a brighter future of medicine in America."

Dr. Billings went on to say how there is a great number of medical schools in the country that have been got up for purely commercial purposes, and that there must be a constant effort by the profession to drive these colleges to the wall so that they would be shut up, and the medical schools will come to be in the hands of the universities. Now this makes it very clear to me that the time will come when the medical schools of this country will consist of a few great schools, perhaps twenty-five or thirty medical colleges, a few large medical schools, and the American Medical Missionary College. Now why? Because this college is the only one of them all that will ever stand for Christian medical education. You can see that. It is the only one of them all that will ever stand for Christian medical education. Now in order that this



school shall maintain its standing and its recognition with these great medical university schools, we have got to maintain a high standard. We have not got a university behind it, but we have got a splendid Sanitarium behind it—that is ~~max~~ why this institution is here, and I want to say to you my friends, that one of the things that ~~we had~~ weighed largely in the scale when we were considering whether the Battle Creek Sanitarium should be rebuilt or not, one thing that weighed heavily was the future of the American Medical Missionary College. Dr. Paulsen and Dr. Morse here know this is true. What shall we do with the American Medical Missionary College, without the Sanitarium, without a great medical institution in which students can have experience, in which they can have an opportunity for obtaining clinical knowledge and instruction, and in which these principles can all be set forth and illustrated in a thorough-going way?—it was necessary, you see, that we should have an institution. We can not have a medical college without we have such clinical advantages connected with it; there must be such clinical advantages as represent curative medicine. Dr. Billings says drugs are valueless as cures; but there are remedies which will cure, and the Battle Creek Sanitarium and its branches, I believe, are today the only institutions on the face of the earth where the whole gamut of curative agencies can be seen in operation. You can see here everything in operation—prayer for the sick, prayer recognized as a curative power; all the physiological agencies in operation; and wherever a drug can render some small service, the drug may be utilized. So here, as I said before, we have in our institution here at Battle Creek and in



in its branches, we have rational medicine, scientific medicine illustrated in its entirety, and there are no other institutions where this is true. I do not know of any other. Do any of you know of any other? I do not know of any other. So here we have the opportunity. A kind providence has restored our building, given us a greater one, a better one, and has helped us to make a model institution that has been rebuilt. As we were putting up this building we felt that we were building an institution for the world, an institution toward which the eyes of all the world would be turned, an institution which must be of such a character as to help give character to the American Medical Missionary College. Now I felt well repaid when one of our colleagues said a few days ago that the great Dublin university had said that time spent in the Battle Creek Sanitarium in service rendered ~~was~~ there was the same as though it had been rendered in one of the so-called regular colleges or in any other of the scientific hospitals. That put it on the same standing, the same footing. That is the thing we have been striving for. If you could have been here thirty years ago this summer, when I had my first experience in connection with the Battle Creek Sanitarium, that is in a medical way--I was here at the Sanitarium editing Good Health here at the Health Reform Institute, as we called it then. This was my home; I lived here and worked here, and one of the things we had to contend with was the scorn and the opposition, and I mean to say, the persecution of the medical profession. The doctors of the town here absolutely despised the institution, held it in ~~the~~ utter contempt, and the patients who came



here to the Sanitarium were never brought by their doctors. Other doctors never brought their patients here. Their patients had to run away from their doctors to get here. The doctors did all they could to keep the patients away. They never sent patients here, and never came themselves. I was detained five minutes just as I was starting over here this evening by a man who caught me in the hall. He said, "Doctor, I have brought my brother here, a physician,"--and he is one of the best known physicians in the Southern State where he comes from, Tennessee, one of the best known doctors in that state--here his brother has come, and he said, "and I brought him here as a patient. We have more than one physician patient at the Sanitarium, more than one.

Last Sabbath afternoon I had a little meeting, and we talked up the question of healing, and we presented the fundamental ideas of our healing methods here, and a good, old doctor came up and shook my hands afterwards, and said, "I am so glad I got hold of a new great idea this afternoon. I have for forty years been thinking that when a fomentation was put on, it was the wet rag that cured; but it is something better." I hope we have done this patient some spiritual as well as physical good.

A few days ago I received a telephone message from a doctor down at the Post Tavern, who wanted to talk to me. I came to the telephone, and he told me who he was. I sent a hack and had him brought up to my house. He came there (I am not sure but what he was at the Sanitarium when he telephoned me). I found him a most splendid looking man, an able looking man of over seventy years of age, but still active, and the Superintendent of one of the largest state institutions in the



State of Ohio, a physician and the superintendent of an institution with accommodations for 2400 patients. That is a pretty good sized sanitarium, isn't it? It is a good deal larger than this, more than three times as large,--accommodations for more than 2400 people. He has been there for forty years in the service of the state. This man, who has a good reputation, is broken down in health, but comes here for relief and brings his wife. I might give you many instances of the same sort of thing. This is a most singular thing. It is ~~it is wonderful~~ This wonderful change which has taken place,-- these principles which were once trampled upon have become popular; this work that was once looked down upon, and that was sat upon, has become respectable, and the most respectable ~~of~~ kind of scientific medical work, ~~that the~~ and the eyes of the officials of the medical profession are opening up, and they are accepting principles to which they must seek to attain. So we certainly are fortunate men and women that we have something to do with this American Medical Missionary College; that we are connected with it; that we have advantages that are ~~that~~ offered here which are the outgrowth of ~~these~~ <sup>this</sup> splendid work which was begun thirty-five years ago on this hill, in what we called the Health Reform Institute, and has grown into what we call the Battle Creek Sanitarium.

The American Medical Missionary College is a child of the Battle Creek Sanitarium. The principles of this work have been wrought out, the working value of these principles and methods have been worked out and demonstrated; and it is through the reputation which the Battle Creek Sanitarium has earned that these principles have become popular, and that the work which is done here in the American Medical Missionary



College has come to be regarded as scientific, and as creditable and so we owe something to the Battle Creek Sanitarium. We owe a good deal to the Sanitarium; it is the university behind this institution, if you please; it is the power which makes this college possible.

Now I think I ought to say this much to you because I want you to see the fact that this is a pretty clear relation that exists between the Sanitarium and this institution. We are under obligations to this splendid work which has been done over here across the road; it has made this work possible, and we should every one of us be loyal to its interests; we should make up our minds to be loyal to the interests which it represents, the great truths, the great principles, the great work which it represents in all parts of the world at the present time, for its influence has ~~reached~~ extended all over the world.

I want to say one word more which has been very much on my heart, and the very first thing that I thought of this morning when I woke up,--this is a time that demands heroic spirits; this is a time when men and women have got to learn to be able to stand all alone. You have got to have the spirit of a hero in you; if you have not got it you are pretty likely to be switched off the track. Some of you may not be able to see this, may not be able to understand it; but we have come up to a time that is a crisis in the history of the American Medical College, in the history of the Battle Creek Sanitarium. This work has been growing, developing all these years, and certainly the time has just now come when it has reached the very climax of its prosperity, when it has brought



us success, when the world is taking off its hat, I might say, in recognition of the splendid things that God is doing here--not that ~~M~~ men are doing, but that God is doing,--the splendid thing that ~~has~~ been done in this Christian institution, carried on in a Christian way as a charitable institution, without any personal profit for anybody, carried on in the way that commands the respect of the world and the recognition is coming now, right here just at this particular moment, when there is the greatest opportunity for the exercise of the greatest things, and the greatest power for good, the greatest uplifting power, for lifting those who are away down, who are almost in the grave; and has developed in these various lines of charitable work, in various lines of philanthropic work, as illustrated in the Haskell Home, orphan asylum, the Old People's Home for aged people, and the institutions in Chicago for working men, for lost women, for children--various kinds of work represented in the Lifeboat Mission and journal, and the great work is continually spreading out among the homes of the people, reaching millions of homes; just at the time when all this development has come,--doing the greatest good that can possibly be accomplished through such agencies as these, here come influences, circumstances, peculiar, peculiar, strange misunderstandings, and the air full of reports, the air full of rumors, and apparently a determined attempt on the part of the powers of evil to destroy all this great and glorious work which Providence has built up during these many years.

Now what does this demand? It demands that all the men and women that stand here on this spot, that every last one of them should be practical men and women. That is what it



demands. It demands that we should all stand squarely upon the truth; that we should know where we do stand. It does not mean that we should put on a coat of mail and go to war; it does not mean that we should sharpen our weapons and prepare to fight; it means simply that we shall, every last one of us, stand in our places, doing our duty, faithfully, earnestly, in the fear of God; conscientiously consecrate ourselves to the service of God as we never did before, and to the service ~~xxx~~ of humanity. If we do that, my friends, we are safe; we can wait; we can wait in quietness;--"in quietness and confidence shall be your strength." Elder Tenney the other morning thought I was getting stirred up a little I guess; he asked me if I remembered the 7th and the 15th verses of the 30th chapter of Isaiah. Well, I said I did not, but I got my Bible just as quickly as I ever could. I read those verses, and as far as I am concerned, ~~the~~ personally, the spirit is willing but the flesh is awfully weak; and it is just as difficult for me to keep still when I see ~~xxx~~ ~~xxxxx~~ that this truth and the work that I have given my life for, ~~for~~ that I have battled for, and been willing to do it; for when I ~~see~~ see it condemned, when I see anything at work that I fear is going to break it down, it arouses me nearly down to the very soles of my shoes, and I have to make a great battle to keep calm, and I expect some of you do, and you do better than I do in that respect. In fact, I do not know that we have quite enough calmness all the way around. It might be a good thing if we could stir up a little more, to put our shoulders to the wheel, to be more active in work, and more helpful, more efficient, and of more service to our fellow men.



The Lord has wonderfully blessed us here this summer. We have had several thousand sick people with us this summer, certainly over three thousand. Our patients have not made such very long stops with us this summer, but there have been such a multitude coming in that we have had nearly 800 people herepart of the time, and more than six hundred nearly all summer. It is astonishing how the patients have rolled in here, and they are still coming. Some are going away, it is true, but we find still a strong current of sick people setting this way. When I go into the offices, and see the people I meet in the offices, the most cultured and influential people, I certainly feel that God is doing mighty things in bringing these people here to be cured and healed, not by us, but by the mighty principles of truth the Lord has put in our hands. So, as I said before, this is a time that demands a spirit of heroism in every man and ~~woman~~ woman, that he shall be willing to set his face like a flint toward heaven, and keep his eyes fixed right there, looking up.

I met a young man today, and he was a good deal discouraged because he found circumstances which prevented his entering the medical college. The time had come, he felt, when he would like to enter the school, but he lacked just about fifty dollars in money. I was awfully sorry I did not have that fifty dollars in my pocket that I could pass over to him, and I hope the time may possibly come some day when we will have just such a fund with which to help the students when necessary. This man went off, and as he went down the steps, I shouted out to him to keep his ideals up high, and by and by he would be back here again. We all need to do that. It sometimes seems as if a great tidal wave was rolling over here



and going to sweep us away, but it wont; it wont; it wont! Many a tidal wave has rolled up against this ship, but it is still here. There have been times when it looked as if this work was to be wiped out a great deal more than it looks so at present; but ~~it~~ Providence has intervened, and Providence will do so now. This work is established in the world. Its roots have been striking down deeper and deeper into the soil, and spreading out further and further. Here is a beautiful tree growing up; the fruit from its branches has been scattered far and wide. Here come the thousands to be healed; here is a tree that bears all this healing; thousands are coming here and being healed, and they are going away and telling other thousands that are coming. It is continually going on. The one thing in the world that can not be overthrown is the truth that has been held up here at this institution. When that truth is forgotten, and when the men and women who stand here are no longer true to the truths placed in their hands; when they are forgetting the truth that is planted here, that thing will destroy this institution, but so long as men and women are true and loyal, no other consideration of any sort can possibly influence the history of this institution. The one thing in the world that can destroy this institution is that the truth that has been held up here should be forgotten. It is the duty of this place to hold up the truth; it is its mission; and it will go on and on and on just as long as men and women are true and loyal to their duty and to their mission.



Lecture to Sophomore Class in

H Y D R O T H E R A P Y

by J. H. Kellogg, M. D.,

Nov. 5, 1903.

The reason-why-the-blood-vessels-contrast with cold applications to the skin surface is that cold is a stimulus to the muscles; whether voluntary or involuntary cold increases muscular excitability. You can see this by an experiment with the ergograph. You will find the experiment wonderfully interesting. Make the experiment with the ergograph; work it until your finger is completely tired out. There is a record made on the wheel of the revolving cylinder. The swing on this record is wide at first, and it gets smaller and smaller and smaller until it gets down to a line--you can not wiggle the finger any longer. Now make a cold application to the whole forearm for just a few minutes; then repeat the experiment, and you will find that the finger goes on longer than it did before, so that the number of movements you can make is greater. The capacity for work had been made hundreds of kilograms greater. This is a very interesting thing. You will find it very interesting when you get into it. The reason for that is that the cold application has made the muscle more susceptible. It has not put any more strength into the muscle, or increased its power any, but has made the muscle more susceptible to the impulses received from the central nervous system; so when the command comes to the muscle to contract, the muscle is more able to contract, more excitable.

In every organ, and in the body as a whole, there is a certain capital or fund of vitality, vigor, stored up. Every nerve cell is full of energy. You look at a ~~nerve cell~~ nerve cell when it has a normal appearance and notice how it



nerve cell when it is normal and notice its appearance. When it is tired out, you look at it again and you know by the looks of it that it is tired. You can tell by the shrunken appearance of the cell. This is also true of gland cells. That shows you that there is in the cell, in the nucleus, of the cell, which is the real source of all the energy of the body--the cell nuclei; the force of the body as a whole is simply the sum total of the energy of these individual cells. You can illustrate the force of every cell by a reservoir, like a miller's pond. When the water runs low in the pond the wheel goes slow, because his head of water is low. We will use a tank for an illustration. We will say the tank is full. Suppose the opening of the tank was at the bottom; then the water would all run out. Suppose that should happen to the body, that our energy should entirely depart from the body, and we should exhaust ourselves of all energy so that it is all gone. What would be the consequence?--We should die, because there would be no energy left with which to recuperate. It takes energy to digest food, to carry on the heart beat, the circulation of the blood; it takes energy to operate the lungs; every organ spends energy in its work. So if we were so constructed that we could get all the energy out of ourselves, out of each individual cell, if our cells were so constructed that all the energy could be gotten out of them, and the muscles were so constructed that all the energy could be gotten out of them, there would be such a condition that when the muscle is exhausted rest would not restore it; it could not be restored. Sleep would not restore it. So



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nature has so arranged that our tank is ~~tapped~~ not tapped at the bottom, but we will suppose it is up here somewhere near the middle. I do not think anybody knows just where it is. But we will suppose it is at the middle. As the water runs out, the stream would fall to the ground, and strike it at some distance from the bottom of the tank, but as the water in the tank diminished, the stream would drop off at a point nearer to the tank, and by and by there would be just a few drops dripping straight down from the end of the spout. By and by the water would be down to the level of the spout, and there would be no water running out.

That represents exactly the way energy is used up and passes out through the body. Energy is spent in just that way. After sleep, after rest, we are full of vigor, after a while our energy is reduced, and we can not exert ourselves as we did before; and by and by we get to a point where we can not expend any energy at all. What does cold water do? Does it increase the available energy?--A general cold application increases the available energy by increasing the draught. It increases the supply of ~~more~~ oxygen, causes more oxygen to be taken in. You can get no energy without using oxygen. There is a certain amount of oxygen always stored in the body, but we can not continue the expenditure of energy without taking in more oxygen, so cold applications deepen the movement of the lungs, and so increases the available energy, and cold water does something more than that. What is it. It ~~tap~~ the tank lower down, so you can get more energy out of it. There are other things that do that. Strychnia does it. Strychnia increases muscular excitability, but at the same



time lessens the ability of the body to consume the poisons produced which result from muscular work, so that it is a dangerous method. Strychnia is poison; the liver has to destroy it, the kidneys have to eliminate it; it causes contraction of the muscles of the kidneys as well as other muscles of the body, and that lessens elimination, so that the blood is not purified, and the poisons formed in the body are left in it, and these poisons are perilous in their tendency, so that while strychnia for the moment increases muscular power or exertion for a moment, it does not in the end. At the end of an hour or two hours it is diminished.

Cold applications do the same thing that strychnia does. The cold application increases the ability of the muscle to let energy out. But at the same time, the cold application increases the power of the muscle to repair itself, and to take in oxygen, and to increase the supply of energy, while strychnia does the very opposite. So while strychnia gives a little temporary help at the expense of great damage afterward, the cold gives the temporary aid without the subsequent damage, and that makes it a most valuable means of increasing muscular excitability, muscular power. But if we go on applying movement, and do not employ any means to replenish the supply, we soon keep tapping the tank lower and lower down, and after while we exhaust that tank.

If we continue exhausting a man's energies by cold applications, we by and by get to the point where his energy will be so far gone, he will be exhausted to that degree that he will be in a state of collapse. Men who fall overboard at sea are sometimes exhausted with cold water so that--a recent



experience has happened somewhere here on Lake Michigan; a ship was wrecked and the captain was lost. Several sailors were lost, although a rope was thrown to them they were unable to hang onto the rope, because they were so exhausted from the cold. Sometimes the energies of patients treated by cold baths are exhausted, overtaxed. We should all see this thing. It is important you should know <sup>if</sup> ~~that~~ the tonic effect you get from the cold application does not give the patient any great amount of new energy, but takes energy out of him. It takes energy out of him and the supply of energy must come from his food, and the only way in which the cold application really helps him is by increasing his power to assimilate the food, and his power to digest. If you have a patient who can not eat, you can give cold applications, but they must be given very carefully and judiciously. Local cold applications are better than general ones. An ice bag over his stomach would be all right, but a general cold bath would be wrong. To have that man go in swimming when he was not eating would be the worst thing possible for him, but an ice bag over his stomach would increase the energy of his stomach, increase the secretion of gastric juice, and increase the muscular activity of the stomach, and so increase the digestion and help him to take in food, and by taking in food would make blood, and improve the blood, and repair the wasted energies by storing up energy in his nerve centers and his muscles, and so prepare him for the general application of cold which can come a little later. I have seen so much of this bungling treatment that I have often wondered that people get as well as they do, but it is because hydrotherapy has a certain capacity for taking care



of itself. It controls itself. Give a man a cold bath, and it seems to do him good somehow. The balance seems to be in favor of the man. He gets out of it somehow or other. It is pretty hard to kill anybody with hydrotherapy because it is such a wonderfully versatile thing, and the patient's sensations are such a good guide--the patient feels it right away if a thing is not suited to him. There is no instinct in a patient about the medicine in a bottle. Suppose there is some good in it. The patient does not say "I feel drawn toward a certain bottle because it will do me good," or, "I feel as though another certain bottle would not help me any." Does a patient ever have such a feeling as that towards a bottle of medicine? You never heard of such a thing. It is utterly impossible. But in hydrotherapy a patient says, "Doctor, I just feel as though I could not take a cold bath this morning; it just makes me shudder to think of it." It will do him harm, so the patient himself gets out of it. If a hot application is made and is doing harm, the patient feels it right away. It makes him feel faint, makes his heart palpitate, makes his pulse run away, makes him sweat, perspire, gives him a headache. There is notification if there is anything going wrong when you are using hydrotherapy, and there are instincts in the body which cooperate with it. That is the thing that helps out the ignorant doctor; but now suppose the doctor sometimes is pernicious, sometimes he is obstinate, and self-sufficient, and he has got a theory in his head that is a wrong theory, and perhaps the patient has rheumatism, has a uric acid dietary, and the doctor knows that the hot bath will burn up the uric acid, so he says to the patient, "you need hot baths, they are good for rheumatism;" but the patient



says, "I feel weak after it." But the physician says, "Never mind, when you get over the rheumatism you will feel better." So he insists upon it. The ~~patient's~~ confidence that people repose in doctors is something pathetic. They ought to be taught to distrust the doctors. That would be a wholesome thing for the public if they would be taught to distrust all doctors, and to suspect all doctors, to distrust them and to inquire the reason why for everything that is done for them. An intelligent man naturally wants to know the reason why. If a man should ask him to invest ten thousand dollars in something, he would say, "What is the reason for it?" Very few men would invest five hundred dollars without knowing the reason for thinking the investment would be a good one. When it comes to a matter of health, they do it on faith. People ought to be taught to look at the matter in an entirely different light.

But if the doctor is able to cooperate, has intelligence enough to understand these principles, and to cooperate with these instincts which lead us in the right direction, and recognizes every little thing, every sensation the patient has in connection with this treatment, every instinctive prompting, he would recognize that as significant, meaning something, and recognize what it means. You would see how much better he can do it. Instead of keeping a patient going down the wrong road for two or three weeks, he would recognize it right away. When you give a patient a cold bath, and the patient says, "Doctor, I feel as though I am not gaining strength, I am getting weaker every day," you have to learn to stop those cold baths, not entirely, but change from the long cold bath of three minutes to the cold bath of half a



minute, from a wet sheet rub, to mitten friction,--change to something lighter, giving the patient some electrical application. In that way you give a patient time to ~~fall~~ up his tank. When he gets his tank filled up, you can go back to vigorous cold applications, and the patient will get great good out of it.

We have to learn things over about seven times before we remember them. It will take just about that number of times to fix things that are new. When a man has a horror of cold water, just think what a horrible thing it would be to give him a cold shower to start with. It would disturb his nervous system, his heart, so it would prostrate him.

The other day, a very nervous, feeble woman here, they had been trying to give her cold mitten friction. The doctor said to me, "I can not give her cold treatment, because I have tried everything, and she can not even take cold mitten friction." "All right," I says, "I will go and do it myself." I went up to see that lady, and ~~that~~ I said, "the doctor says the treatment does not agree with you." Her husband was there too, and they were both fighting as hard as they could against the cold treatment. That was just the kind of case that needs cold treatment, because it shows that resistance is very very low. I began this way. I said to this lady, "I notice that your head is hot; I see your hands are cold." Yes, she says, "My hands are always cold." While I was talking with her I slipped my hand into cold water in the pitcher on the stand near by, and I passed my hand over her forehead, and said, "doesn't that feel good?" She says, "O, yes, that feels so good!" I did it again, three or four times, and the last time I drew my hand down a little lower, and got down



by the neck, then I wiped it off. She looked a whole lot better. Her husband noticed it. I said, "your hands are cold," and she said, "yes." I said, "just let me warm them," so I spatted them and rubbed them for a few moments, and I slipped my hand in the cold water and gave her hands a rub with the water, and then spatted them again. I said, "it seems to me your whole arm is cold. Wouldn't it be nice to see it flush once?" so I got hold of her k arm, and treated it well, and then did the same with the other arm. I said, "cold water is wonderfully refreshing, isn't it? I have a cold bath every morning, and don't know how in the world I ever could get along without it. I dread it awfully some mornings, but I just take a good, long breath and jump in, give myself a good rubbing, and when I get out I feel like a younger man." That interested her very much. I went on and explained to her how the cold water would gradually raise her notch by notch, little by little, until by and by she could take cold treatment. She said, "I can't stand cold treatment?" "But," I said, "you have been having it, haven't you?" I have given your face and hands and arms a cold bath while you were talking." "Oh!" she said, "I didn't know you could do it that way." You see you have to use tact. Sometimes a patient can take a cold bath for his face, and neck and arms one day, and the next day will have it for the body and legs, and the next day, perhaps, the front of the trunk. Or you can have ~~the~~ half the body in the morning and the other half at night. So you can gradually educate the people up to it. Everybody can take these cold baths, and must have them in order to live long and have new lease of life. Cold water is the thing that really cures. Cold water is the thing that helps.



A Lecture at the Tabernacle, Battle Creek, Mich.,

Sunday Evening, November 22, 1903,

7:30 P. M.

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Dr. J. H. Kellogg.  
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*Nature Cures*

~~HOW THE BODY IS DEFENDED AGAINST DISEASE.~~

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I said, "How is it it will protect me in that way? How does it get such wonderful power?" "O," they said, "We practice such great self-denial that our prayers are very efficacious; we are so good that our prayers are very efficacious, and we have prayed over all these, and in that way you will be protected." Some time ago I met a man who showed me a horsechestnut which he had carried for twenty years, and he said it had kept the rheumatism off for twenty years. Emerson tells us of a man who carried a horsechestnut which kept the rheumatism off for fifteen years, and not only that, but for all the previous time in which he had not had rheumatism, so you see the horsechestnut was retroactive.. It is just as reasonable to suppose that the chestnut protected him while it hung on the tree, or even before it grew, or while it was still on the tree as while it was in the pocket. There is no such thing as protection from this or from any other sort of hocuspocus, or by magic, as I believe a great many people are expecting to be protected from disease by some sort of magic, by some sort of supernatural means. The Bible says, "whatsoever a man soweth that shall he also reap." There is a Psalm that says something about this. "He that dwelleth in the secret place of the Most High shall abide



under the shadow of the Almighty. I will say of the Lord, He is my refuge and my fortress: my God, in him will I trust. Surely he shall deliver thee from the snare of the fowler, and from the noisome pestilence." Who shall deliver us?--God. "Surely he shall deliver thee from the snare of the fowler, and from the noisome pestilence. He shall cover thee with his feathers, and under his wings shalt thou trust: his truth shall be thy shield and buckler."

Now it is the Lord that delivers, but it is the truth that is the protection. So the Lord delivers through the truth. "Thou shalt not be afraid for the terror by night; nor for the arrow that flieth by day; nor for the pestilence that walketh in darkness; nor for the destruction that wasteth at noonday. A thousand shall fall at thy side, and ten thousand at thy right hand; but it shall not come nigh thee. Only with thine eyes shalt thou behold and see the reward of the wicked." "Evil shall slay the wicked." It is the evil that rewards the wicked. "Evil shall slay the wicked." "Because thou hast made the Lord, which is my refuge, even the most High, thy habitation, there shall no evil befall thee, neither shall any plague come nigh thy dwelling." Let us recall again the words here, "He shall cover thee with his feathers, and under his wings shalt thou trust: his truth shall be thy shield and buckler." Now we do not believe the Lord has feathers, that the Lord has literal wings made of feathers, we don't believe that; this is figurative language and figures of speech. "His truth shall be thy shield and buckler." Now we are told the truth is the thing that will protect us, and the Lord is going to protect us, his truth is to be our protector



tector, and "because thou hast made the Lord, which is my refuge, even the most High, thy habitation". "He that dwelleth in the secret place of the most High." What is it to dwell in the secret place of the most High? What does that mean, to make the Lord our habitation? There are several things here that seem to mean the same thing: truth being made to be a shield and buckler; the Lord being made our habitation; and the secret place of the most High being our dwelling place. "I will say of the Lord, He is my refuge and my fortress", a man who is hidden in God;--what does that mean? It can mean only one thing, and that is that the man who is in harmony with God, that is in communion with God, ~~with his~~ that his will is surrendered to God, and who has accepted God's truth, and made himself acquainted with God's truth, that truth will take care of him, because it will direct him in his communion with God, his being in harmony with God, he will know what he ought to do, he will be properly managed, because he will hear the voice behind saying This is the way, walk ye in it.

This Psalm points out to us very clearly the fact that the only real protection for man is to have the truth. The man that does not have truth can not be protected, because he has not got the shield and buckler. He is not dwelling in God; he has not found the secret place of the most High. The secret place of the most High is the place of complete harmony with God, isn't it? It does not mean a place hidden away in a cave in the ground somewhere, but it means harmony with God. This is just as true physically as it is true spiritually. I wish, my friends, you could all get hold of that conception. There is only one law for man--God's great decalogue, and



it is a law that is great enough to include the whole man--all his duties to himself, to his fellows, to God. This decalogue covers the whole thing--physical, mental, moral. There is not one law for the physical man, another law for the moral man. Some people think that there are certain things a man is under obligations to obey; the moral law he must obey; but things that relate to his body it is purely optional with him to obey or not as he likes.

I was talking with a man sometime ago who was treating his stomach. He said, "It is my stomach; it is not yours. Can't I treat it as I please? I have a right to do what I like with my stomach"; but that is not true. A man can eat what he likes, but he can not digest what he likes. By and by he can not digest at all. The man can eat but he can not digest after he has eaten. If there is any digestion to be done, it takes a power beyond him to do it. So far as a man is concerned he can not digest a dinner in his stomach any better than he can digest it in his pocket, because he has no more control over his stomach than he has over food in his pocket--not so much; he has no power. We have the power to eat what we like, but after it has been eaten we depend entirely upon a higher power for the digestion of that food, the creation of the gastric juice, the creation of the pepsin, and of the acid necessary to digest the food, and to transform it into material out of which blood can be made, that is a power which is entirely beyond us. It is the same sort of power which is necessary to create a man. The gastric juice has to be created, and Prof. Pawlow, the great physiologist of St. Petersburg, has in recent years, by wonderful



experiments upon dogs demonstrated that there is a particular kind of gastric juice that must be created for every single meal; that every new meal requires a new kind of gastric juice. If you eat potato it requires one kind of gastric juice; if you eat chicken it requires another sort of gastric juice; if you eat a piece of fat pork, it takes another kind of gastric juice. Whether it is a pear, a plum, or bread of some sort, it requires different gastric juice. The gastric juice must be adapted to the particular meal, to the size of the meal, the amount of food, and the quality of the food eaten. This is a very important discovery that Prof. Pawlow has made. It has been surmised for many years, but it has never been proven until Prof. Pawlow has recently proven this to be the case.

There is another wonderful thing: while this digestive process is going on in the stomach, a process by which even animals can be dissolved--an opening was made into a dog's stomach and the hind legs of a frog tied together and these legs were thrust into the stomach of the dog and left there for two or three hours. At the end of that time the frog had lost its hind legs. If the stomach was not able to digest living things, a great number of people would be going about with live oysters swimming about in them. There are thousands of people swallowing live oysters by the dozen, and these live oysters are digested in the stomach. It is impossible for a person to have a lizzard or any other live animal in the stomach, for these animals are dissolved by the gastric juice.

Why, then, does not the gastric juice destroy the



stomach, dissolve the stomach? Why doesn't the stomach digest itself? Why isn't it digested? Why is it? No man on earth can answer that question excepting by saying it is protected. The same all-wise Power which made the stomach, which makes the gastric juice, protects the stomach and saves it from the corrosive digestive action of its own power. So here is a wonderful thing that brings to our attention at once the fact that we can not ourselves digest; we may eat, but we can not digest. If that is true of such a matter as the stomach, how much more it is true of those wonderful manifestations of vital power by means of which we throw off, and resist disease. It is a thing entirely beyond us. The only protection for us is then to be in harmony with God, and to recognize the laws which relate to our being. These laws are not arbitrary rules, or even laid down for us to follow, but they are principles which grow out of the nature of things. Man has teeth constructed to eat certain kinds of food. There are creatures that can live on oak trees. You will see a dead oak tree, an oak log, and you will see it all honeycombed sometimes with holes that have been bored by creatures which live upon oak logs, but a man can not live upon oak logs, he could not chew the wood, could not masticate it, or digest very much of it if he did masticate it. He can not live on this sort of food. His teeth are adapted to certain kinds of food because the whole body is adapted to certain conditions, and if he undertakes to depart from those conditions of life, death will follow.

God does not protect a man, save a man by arbitrary enactment. Suppose I had here a candle, and I should de-



liberately put my finger into that candle flame, and pray as loud and as long as I could for God to protect me and save me from being burned, I should not be saved; I should be burned. If I wanted to save myself from being burned, by that candle, I would refrain from putting my finger into the flame. If God wanted to save me from it, he would show me how to keep away from it; he would give me better sense than to do such a thing. I do not say it is not possible for him to do it; I am only speaking of what he does do. God is consistent; he is reasonable; he exercises commonsense in what he does. Whatever commonsense we have we get from God. He made our commonsense; it is loaned to us by him, and it is a part of his own great fund of knowledge and intelligence. If it were not that God has commonsense, we could not have it; but we get it with all of our faculties from the great heavenly Source of all life, all wisdom, and all knowledge. The only protection we can hope for under any circumstances, is to be found in obedience.

As Moses was introducing the Children of Israel to the Promised Land, he gave them some special instruction, and it is summed up in some very precious words here in the fourth chapter of Deuteronomy. "Now therefore hearken, O Israel, unto the statutes and unto the judgments, which I teach you, for to do them, that ye may ~~live~~ live."

There was no hope for their living if they did not do that. "For to do them, that ye may live, and go in and possess the land which the Lord God of your fathers giveth you. . . . Keep therefore, and do them; for this is your wisdom and your understanding in the sight of the nations, which shall hear all these statutes, and say, Surely this great nation is a wise and understanding people. For what nation is there so great, who hath God so nigh unto them, as the Lord our God is in all things that we call upon him for?"

Well now we call upon God for a great many things we do not appreciate. We are making appeals to God a thousand times a day that



we do not appreciate. It is our need which appeals to God; it is not what we say. Suppose a man got down and prayed to the Lord to give him a gold mine when he already had all he needed. You would not have any expectation that the Lord would give him any such a thing as a gold mine. If he prayed for anything he had already and did not require, and prayed to the Lord for that thing, he would not get it. The Lord never gives a man anything unless he needs it, and when he does give him something he needs, it is not because he asks for it, but because he needs it. The asking is not the thing that persuades the Lord to give it to him. It is not the asking; but it is the necessity, the need, which appeals to God, and the asking is only the evidence to the Lord that the man himself appreciates his need, and when his need is supplied that he will recognize where it came from, recognize that God is the giver of it. I do not think God ever gives anybody anything simply because they ask for it; but it is only when they need it. We have to ask in harmony with God's will ~~in~~ in order that we shall have our prayers answered, and ~~if~~ it is his will to give us all things that we need. This is his will. As I have said, we are all the time making appeals to God; we are pleading with him to give us what we need through the expression of need; without asking verbally or vocally, we are still sending up a constant prayer, our bodies are sending a prayer to God, and the prayer is efficiently answered. Every time you say to your hand to take something, or put out your hand to take something, ~~it always~~. that very impulse is a prayer to God, for help, because this impulse that travels out from your brain and down into your arm, to your muscles through your nerves, that impulse has no power to lift in itself. There is no power in that to lift 100 pounds, or 500 pounds, or half an ounce. Your brain is not a great engine of power that can send out force into your body. The brain is only a mass of jelly, of trembling jelly, and it is nothing but a little tremble that goes out from your brain, and



and it travels along down your nerve to your muscle. You exercise power in your muscle; you ~~it~~ raise five pounds, ten pounds, one hundred pounds; you hold it out, lift it up, go on lifting with your muscle all day. Here is a man chopping wood, another sawing wood, another digging, another man engaged in some other occupation--lifting stones, lifting brick, lifting heavy timbers, striking hour after hour with the hammer. Every time there is a muscular contraction God is manifesting power. It is a manifestation of divine power. Man hasn't any power of himself. The power is of God. All power is of God. This power which a man manifests is simply power God manifests for him, and has loaned to him; he has established certain conditions under which this power may be manifested, and so it is simply loaned to man. ~~Ma~~ His will sets this power in operation, but the power itself is God's power. So the thrill which travels over the nerve is simply a prayer to God for help and an appeal to God, and it is answered. When a man eats, takes his food into his stomach, there is another appeal to God. We have not the power in ourselves to digest food; it is an expression of our need, and God responds to our need. So in all our needs God is caring for us, caring for the circulation of the blood, performing all the functions of the body for us continually; so how dependent we are upon God!

"His truth shall be thy shield and buckler." I want to show ~~say~~ ~~me~~ you, my friends, how that may be; if I can make that lesson clear tonight, I shall be satisfied with my effort.

In the first place, let us look at the body and see what God is doing in the body. We will not say, How does the body defend itself against disease, but How does God defend the body against disease? In the first place, let us look at the skin. Here is the covering of our bodies. You want a pair of shoes made; you get a pair of shoes made of the skin of some other animal. The skin is one of the most interesting



of structures;--tough, enduring, firm, porous, pervious to water, so it is the best kind of covering for the foot; it is the natural covering, and to supplement our natural covering ~~with~~ we put on the skin of another animal over our feet. When Adam and Eve were first clothed in the garden of eden, when they had sinned and they found out they were naked, and they made themselves garments of leaves, God covered them with garments of skins. Skin seems to be the best possible covering for the body.

When we examine the skin we find it is a most wonderful structure. It is covered all over the surface with little scales. Look at it through the microscope, and you find that a man as well as a fish is a scaly animal, and has scales several layers deep. Examine any portion of the skin, ~~and~~ the surface of the skin, and you will find, if you examine it minutely, that there is something more than scales; there are blood vessels, little glands which secrete fat, and glands which secrete the perspiration, the sweat; these little ducts reach down into the skin and bring the moisture out upon the surface of the skin. These little ducts, arranged end to end, would make a tube several miles long; and if the tubes were split open, and laid out flat over a flat surface, they would cover a surface of more than 11,000 square feet. The actual skin has a surface of about twenty square feet; but these little tubes, if they were split and rolled out, just as you would take a piece of rubber tubing split it open and spread it out flat, they would cover a surface of 11,000 square feet. There are blood vessels and nerves connected with every one of these. So the skin is a wonderful and delicate structure.

The surface of the skin is covered everywhere with deadly germs. When you get scratched somewhere, get cut, get a little sore, and it materates, it is not because you have got some germs in from the air, but because the germs have been creeping down into the sore.



When you get a boil it is because some of these germs have gotten beneath the skin, and grown in the skin. That is what makes a boil. Abscesses are made in this way. When you have an eruption like eczema, or moist tetter, it is because these germs, which are always found upon the skin have got the start of the body, and have got to growing, and are destroying the skin. When a person dies, within thirty-six hours after death, the whole body is filled with these germs which are found on the skin. Examine the blood or the living flesh below the skin, and there is not one germ to be found; but within thirty-six hours after death, the whole body is filled with germs, because just as soon as the living spirit has left the body, just as soon as the divine life has departed from the body, the body becomes simply a mass of clay, dust, and these germs penetrate everywhere with nothing to hinder. While we are alive the skin sets up a resistance. If a germ works down a little ways, some cells of the skin destroy it. Live tissue resists the action of these germs. When you see a tree that has mildew on its leaves, and mould growing on it, you know that tree is not healthy. Mildew can not grow on a healthy tree. You find in a meadow a place where the grass has fallen down, and you see it is mouldy, musty, unnatural. But the living grass has no must on it. Must can not grow on living grass. Living things will not permit germs to grow upon them. Germs can not penetrate the body on the outside because the skin destroys the germs so that they can not get through. The bark of a tree does the same thing. It kills the germs which come in contact with it.



Some germs get into the nose, and the nose is a strainer; it is collecting germs, yet they do not grow in the nose in great numbers in a healthy person. Very often these germs get to growing in the nose, and they cause the mucous membrane to become diseased, and obstruct the nose, and then a person sleeps with his mouth open.

We had some very distinguished visitors at the Sanitarium the other day; some professors from Boston came to see us last week, one of them one of the greatest professors in the world, and they called upon us--came on purpose to see us. They were going down to Chicago, and stopped over half a day ~~at the~~ to look at the Sanitarium. I took great pride in showing them around, and in showing them that people could be healthy without living upon the remains of animals. We showed them our family of helpers, and I took them up to the Haskell Home, and I felt so happy and proud as I ~~showed~~ showed them through the nursery,--there were the little ones all sound asleep, looking as sweet as little angels, and not one of their mouths open,--all tightly closed. That is a sign of health, and one of these men, who is a physician, recognized it at once as a sign of health,--those bright, rosy cheeks, with the lips all closed. That was an indication of health, a very important indication, of health, indeed. Why is it these germs do not grow in the nose. Why is it they do not accumulate there? Germs grow very rapidly. They grow with prodigious rapidity. There are certain germs which grow so fast that a traveler in the Alps will go to sleep at night, where he can see several square miles of snow. In the morning it will look red, because certain germs have grown there so very fast on the snow as to make the change. Sometime



ago I received a very interesting package from a man out in Iowa. He sent me a quantity of rice food that they had eaten for supper one night when it was fresh, and the next morning ~~there~~ --there was a portion of it left--the cook went to bring that rice food for breakfast, and it was as red as blood, looked as though it had been painted over with blood. I found that it was caused by these very interesting germs which grow with great rapidity,--micrococcus prodigiosus/ It had covered the whole dish in one ~~at~~ single night.

There is a little Church in France where that same thing happens. The church is so filled with them that if a person brings a piece of bread there and leaves it over night, in the morning he finds it all covered red. So this is the miracle of the bleeding bread, and it is known as the miracle of the bleeding bread, and the church is very carefully guarded, and visited by thousands of pilgrims every year who come to see this miracle. They think that is the blood of Christ, and they attribute it to a very great power, think that a remarkable miracle is being repeated by which the bread is stained red. It is simply because the church has so many germs in it, and of this particular kind of germ.

Put some of those prodigiosus germs into the nostrils of a man, and in half an hour not one of them can be found; and of the millions and millions of germs that are being taken into our noses all the while, especially in a city like Chicago where the dust is all germs--it is more than half germs in Chicago because it is nearly all excreta of animals, and the excreta of animals is in many cases one-half germs. The passages of the bowels consist in many cases--one-half of the entire volume consists of germs; so you see the air is full of germs in a great city; but don't imagine that these germs taken into the nose accumulate there. Why don't they live, grow, and develop there?--Simply because



the mucus of the nose destroys the germs.

Did you ever stop to think why the eye is kept so clean? You never have to wash the inside of the eye unless it is in a very low, diseased condition. There is a little gland above the eye that makes tears, which are not simply for the purpose of expressing emotion, for they are being created all the while; they moisten the eye and disinfect the eye, destroy the germs that get into the eye so they can not grow in a healthy eye. These tears run down the eye and into the nose, and in the nose they also destroy germs. In the mouth the saliva destroys germs. That is the reason why the mouth of a healthy person is clean, why the tongue is red and clean--no coat upon the tongue. That explains why a coat upon the tongue is an indication of disease, disease of the stomach, disordered digestion. It is not simply an indication that the stomach is diseased, but it is an indication that the whole body is diseased, the entire body is diseased. Why is it that the saliva, the mucus of the mouth, the mucus of the nose, and the tears of the eye-- why is it that these liquids are all germicides, or capable of destroying germs? Why, because the blood destroys germs. That is the reason. The blood destroys germs. The Bible says "The blood is the life.", "The life is in the blood." That is why the ancient Jews were not permitted to eat blood. We see plenty of people now-a-days eating blood. I saw a man at a hotel a while ago, and I watched him while he ate blood. He had a piece of beefsteak about half cooked, and when he cut it the blood all ran out on all sides. He took the piece of beefsteak and sopped it in the blood. Suppose instead of having the blood in the beefsteak he had had some blood in a pitcher, and turned the blood out on the plate, and put a piece of bread on it, and sopped the bread in the blood and ate it; that would have been just the same thing. The blood comes out of the flesh. There was blood in the flesh that never



had been expressed out, never ran out, and when it was cut with a knife the blood did run out, and he ate it along with the meat. You might just as well take a piece of bread and soak it with blood and eat it as to eat a piece of beefsteak soaked in blood. It was a heinous crime in olden times; and in the 15th chapter of Acts, and the third chapter of Galatians you will find it was a sin for for a Christian to eat blood just as much as it was for a Jew to eat blood. The command not to eat blood was given to Noah and reiterated to Moses, and by Moses given to the Children of Israel; and James, the President of the first church that was organized at Jerusalem, the brother of the Lord Jesus Christ, wrote a letter to Christians in which he told them that they must not eat blood. "It seemeth good to the Holy Ghost and to us to lay upon you no other burdens than these four things" and forbidding to eat blood was one of the four things. They were not to eat things strangled either. Why? Because things strangled have the blood in the body. That is the same thing. We see people doing that at the present time.

It is remarkable that there is a law, a principle, which goes back beyond the Jewish law and statutes, and that principle is that the life is in the blood, and the blood is a sacred thing. Now it is this life in the blood, this life and power in the blood which sustains the body against disease, and defends the body against disease, which created the body in the first place, and which heals the body, and which defends the body. This life in the blood finds its way out of the blood into the eyes, forming the tears in the eyes; into the mouth, forming the saliva which moistens the lips, the gums, and the cheeks--it is this life--protects the body, and in the



mouth prevents the formation of germs. If it were not for these germs in the mouth, you never could have a tooth decay. The most common of all human maladies is an ulcer of the teeth--the formation of cavities in the teeth, which is the same as an ulcer on the flesh. Nearly everybody above ten years old has decayed teeth. A great many children under that age have decayed teeth. How many people are there here in this room now who have not a single defective tooth, who have never lost a tooth,--have thirty-two sound teeth? Please put up your hands. Not a single hand is raised. Hence there are here in this room at least 150 people who ought to have thirty-two sound teeth, and not one person here has thirty-two sound teeth. So that shows the body deteriorates. Germs have been growing in your mouth, and have destroyed some of your teeth. Why? The fluids of your mouth have lost the power to destroy these germs. If the blood had been right the fluids of your mouth would have been right; if the blood had brought life, or if the saliva had the life it ought to have, the mucus of the mouth and nose, and the tears would have had the protective power they ought to have had, and there could not a germ grow in your mouth. No, sir! Suppose you should take a wall and whitewash it all over with corrosive sublimate,--could germs grow upon it?

The other day I was called in to a house, and a lady pointed out a green and yellow spot upon the ~~wall~~ and ceiling, and said, "Doctor, what shall I do with that? I wish you would tell me what is the matter with it. I have papered it over and over, but that spot keeps coming." I said, "Your house is sick; it has the leprosy. That is what it means." I said, "Look here," and I read out of the book of Moses a description



of a house that had got the leprosy, and the lady said, "It had been green, yellow, blue--all those different colors have been coming there. Well," said she "what shall I do?" "What did the Lord tell the Children of Israel to do?" I said. "Scrape all the plaster in the house off; carry it off outside the city. Then shut the house up, and if it appeared again at the end of a certain number of days, what were they to do next? Tear the whole house down. Why? Not because those germs were dangerous, but because a house in which this mould could grow was absolutely unfit for a human being to live in. A house which was so damp and so filled with germs that moulds could grow in it was not the place for human beings to grow. It was not healthy for them." These fungi grow in dark, empty spaces where the sun does not shine, or where the air is damp, and the conditions so unfavorable for human life that it was seen that house was not a healthy house, and was not a wholesome place to live. This lady thought that was pretty hard doctrine; nevertheless it was true; and she became sick, and members of her family became sick; one of her children died of tuberculosis, and another one had other serious troubles, and they were all sick until they left that house, and some of them never did recover. A great many people live in similarly unhealthy houses.

The reason why germs grow in the mouth is the same as the reason that germs grow on the wall. It is a healthy place for germs, but unhealthy for living tissues. It is not healthy for the teeth. The reason it is healthy for the germs, is that the saliva and mucus have lost the power to destroy germs. If the teeth are not washed, of course that makes it all the more easy for them to grow. A dog has a nice clean tongue and white teeth, and does not use a brush either.



When I was a boy I wondered why it was necessary for me to clean my teeth so carefully every day with a brush, and then I could not make my teeth look nearly as nice as a dog's teeth. In spite of all the care I was taking of my teeth, I could not make them nearly as handsome as a dog's teeth. I used to envy the dogs, and wish I had teeth like theirs. Notice the teeth of a dog--not an old, rheumatic dog that has been eating meat until he has got thoroughly diseased; but a young, healthy dog, and you will see his teeth are all clear white. That is an indication of health. If that dog's teeth were coated, it would be an indication of ill health. ~~XXXXXXXX~~

Suppose you should go to buy a horse, and should go to a horse auction, and you should see two horses there, and you should examine those horses there ~~not~~ one by one, and find that every horse there had decayed teeth, and some of them had lost part of their teeth, one of them with half his teeth gone; another one with three or four rotten teeth,--you would say they were a poor lot of horses. Well, we are just that kind of folks. We have all got miserable teeth. You would say those horses had bad constitutions. The fact that the horse's teeth were decaying was evidence that the horse himself was decaying, going down hill; that he was a deteriorating horse. That is true of every person here. We are deteriorating, going down hill, evidenced by decaying teeth.

I met a child six or seven years of age a ~~xxxxxx~~ few days ago, that had not a sound tooth in its mouth. Most of the teeth were decayed clear down to the gums. That child has a short life. Very likely it won't live to grow up, because its blood is so poor in quality that it can not keep its teeth healthy, and it will not be able to combat the causes of disease



that it must encounter in years to come. The hydrochloric  
The hydrochloric acid of the gastric juice destroys germs, and the  
pepsin destroys germs. If a person abuses his stomach in such  
a way that it no longer makes gastric juice, he becomes an easy  
prey to disease. A man can not get typhoid fever so long as  
his stomach is sound, his gastric juice is sound. He can not  
get the cholera; because the stomach can digest typhoid fever  
or cholera germs just as easily as it can digest cucumbers.  
I do not advise you to try to live on cucumbers so that you  
will get ready for cholera germs. A person who can digest a  
mushroom can digest cholera germs. They are both fungi. Whe-  
ther made into a mushroom or a toadstool, it is the same thing.  
It makes a difference how we call things, doesn't it. A  
lady told me she was taking dinner at a table in a certain  
place some time ago, and a man offered her some pork and beans,  
and said, "Will you have some of the remains?" She said it  
spoil'd her appetite. But it was just as true, the word was  
just as correct in reference to that dead hog as in reference to  
any other dead thing. The stomach is prepared, when it is  
sound and healthy, and makes healthy gastric juice, pepsin,  
and hydrochloric acid, is prepared to meet any germ that comes.  
The tubercular germs,--germs of consumption--germs of dysen-  
tery germs, cholera, typhoid fever--every other germ that  
grows in the alimentary canal makes mischief by growing there,  
is destroyed by healthy gastric juice; but half the people of  
the country do not make gastric juice enough, haven't acid  
enough in their stomach, and a great many have not any at all.  
We had a man some time ago at the Sanitarium who looked as though  
he was sick; he had hardly any blood left. He had only one



blood-cell where he ought to have had thirteen. He had one-thirteenth as many blood-cells as he should have had. I did not suppose a person could live with so little blood; but he was alive, and having so little blood, we had to keep him horizontal. We had to raise the foot of the bed so as to let the blood run down to his head to keep him alive. He would faint away if we raised his head six inches. We fed him up little by little, little by little,--we fed that man up until we got his blood up to normal again, and he went home with rosy cheeks and red lips. He did not have a drop of medicine of any sort at all. It was just simply bringing him back to normal conditions again. Here was this man; he had so little blood because his stomach had lost its gastric juice, lost its acid, and germs were growing in his stomach and bowels in prodigious quantities, and these germs were producing a special kind of poison which, when absorbed into the blood, dissolves the blood ~~xxxxxx~~ cells, unless the blood is able to take care of them, they destroy the living cells of the blood so that they disappear. The only way to save that man's life was to kill off these germs. So we gave him fruit juice which destroyed germs, and gave him simple food,--gave him no beefsteak, because beefsteak encourages germs. After while we got the germs killed off and then his body gradually developed blood again. The healthy gastric juice kills germs. Away down in the small intestine there is a sort of mucus which is necessary for the protection of the body. This is one of the most ingenious, remarkable arrangements for the protection of the body that is to be found. It is a curious little structure that has been very much abused in recent years. Suppose this



drawing represents the colon. Here just at the lower end of the colon is a small appendage called the vermiform appendix, and here is where the small intestine joins. There are five feet of the colon, and about twenty-five feet of this small intestine. Here is a little valve, and as the food comes down through the intestine here, it drops right through, so the germs that are in the food--mustard, pepper, peppersauce, ginger, Cayenne, and all these wicked things that people often swallow with their food come rattling down, and at this point, they all fall right through. So this is the part of the intestine which is most exposed of all. No part except the stomach is exposed so much as this part, because of the concentration. Even a continued dropping of water will wear the most solid rock. All the food drops right here. The vermiform appendix makes a peculiar mucus which protects this part of the appendage and smears over all the food that comes in here, and protects the intestine all the way along. At the same time this mucus destroys germs. How ridiculous it is that people should talk about the appendix being a vestige of a stomach that a person had when he was an ape! We ought to get rid of that notion as quickly as possible.

A New York doctor thought if everybody had the appendix removed, future generations, perhaps, would get tired producing the appendix and leave it out, and we would be relieved of this superfluous organ. But this organ is a very necessary part of the anatomy. It manufactures a disinfecting liquid. You go down to the drug store, and you buy some chloride of lime to disinfect the premises. This manufactures a disinfectant which protects the colon. The food remains in



the colon for some little time, and while it remains here, decomposition is likely to take place, and this disinfectant that is produced prevents that destructive and dangerous formation; so this is a very important little organ. That is one way in which the body defends itself against germs.

Here are the lungs. In the lungs we have spread out two thousand square feet of mucous membrane. That is quite a large space you see. A space forty by fifty feet. That would be two thousand square feet. If you should strip out of the lungs the mucous membrane which lines the lungs, it would cover that surface. It would be as large an area as this central portion here inside the pillars--fully as large as that. The mucous membrane ~~ix~~ ~~xx~~ of any ordinary man would cover a surface as big as that. This great surface is spread out so that air may be absorbed with great rapidity. This surface is covered all over with wonderful living cells with little bits of round bodies looking like little jelly drops; but every one of them alive. These little cells capture the germs and destroy them, annihilate them, eat them up, just as a dog does a rat. So these little cells capture the microbes ~~that a man~~ ~~xxxx~~ ~~xxx~~ ~~xxxx~~ ~~xxx~~ If a man eats a hog it is the same thing; the hog becomes transformed into the man, disappears, enters into the man. These microbes are destroyed by the cells of the lungs, and in that way the body is protected. A man who has a perfectly healthy body can not get consumption. He may take these tubercular germs into his lungs, but they can not live there. These little cells destroy the tubercular germs. No man can get consumption when he has healthy blood. No person can have



catarrh of the nose, or catarrh of the lungs, or catarrh of the stomach or catarrh of the bowels, or any other kind of catarrh so long as his blood is healthy. No person can have a skin eruption so long as he has healthy blood. The body is like a great railroad corporation which has twenty different branches. Suppose you were riding over one of these branches and you would find the ties were rotten, the rails broken, and empty broken cars lying all along beside the track, you would say that was a decaying corporation; because so long as a corporation was sound, they would take care of the branch, and all the branches.

So when you find a man with a diseased stomach, that man is an unsound man, not simply because his stomach is sick; but the fact that the stomach is sick is evidence that the whole body is sick. So long as the body and the blood remains intact, the body will heal any member that is sick.

There are many other wonderful things about the protecting power of the body. Here is a man gets typhoid fever. There are some germs growing down in his bowels, and these germs are producing poisons; these poisons make a rise of temperature, and they cause various mischiefs to take place in the body. After the germs have once got started, why don't they keep right on growing? When I was a small boy I got the measles, and I said to my mother, "Where did I get it?" She said, "You must have caught it of one of the schoolmates." I said, "Mother, I have got it; how am I ever going to get rid of it? If I have caught it of such a boy, I will certainly keep catching it of myself, and how am I ever going to get rid of it?" If I caught it by that boy that was living across the street, I thought I should certainly keep on catching it of



myself, and how would I ever get well? My mother did not answer that question, and I puzzled it over all my life time, how I never could get over the measles when I once got it. When I came to study medicine it was one of the things I was interested in, to find out how I or anybody else got over the measles. The books did not tell me anything about it. It is only within the last ten years that the medical profession have found out how it is the body gets over the measles; why, when a person gets typhoid fever, he does not keep right on having it. It is one of the most interesting subjects,--how the body defends itself against disease. This is the thing we found out: that there are certain organs of the body the duty of which is to produce certain poisons to produce certain anti-~~toxins~~ toxins, or antidotes for poisons. These substances are not really poisons in themselves; but they are antidotes for poisons. When a person is poisoned, with opium, or arsenic, somebody runs away to get an antidote right away as quickly as possible. I remember once a patient came running to me in very great haste, and said he had just swallowed a little carbolic acid. He said, "How did that happen?" He said "I saw a bottle of wine and a bottle of creosote standing side by side, and without looking at the label I helped myself out of the creosote bottle", and he swallowed it so quick he did not discover what it was until it was done. I gave him an antidote as quickly as possible,--a quantity of linewater for him to take, and there was not anything else but a piece of soap, so I gave him the soap, and you ought to see that boy gnawing that soap. He lay hold of it as though it was a real sugar plum. It was interesting to see how greedily he devoured that bar of soap.



I gave him next a bottle of mucilage to swallow, and in the meantime we dispatched somebody to get some milk; so we gave him all the antidotes in sight, and I think they all did him good, because we succeeded in saving his life. The ridiculous thing about it was that he had just signed the total abstinence pledge, and I took occasion to make some remarks to him about it.

Well, now, the body makes antidotes for poisons. I want to impress that upon your minds. Remember this thing, that the body makes antidotes for poisons. There are several organs of the body that have that for their duty. Here is one here--the thyroid gland. Some people imagine it has not any other business but to swell up and make ~~much~~ business for the doctors to remove. The thyroid gland manufactures antitoxins, or poison antidotes. Then these little lumps that sometimes come along the side of the neck, and back of the neck, the lymphatic glands, or so-called lymph glands. There are many millions of these, and all of them manufacture antitoxins. They all make poison antidotes; the liver makes poison antidotes, and the spleen perhaps, and there are other structures in the body which also make these poison antidotes; but perhaps the most important of them all are two little bodies found right on top of the kidneys. On top of the kidney there is a little cap, and that is the capsule which manufactures large quantities of these poison antidotes. When a person gets typhoid fever, or diphtheria, or pneumonia, or any infectious disease, it is because these ~~germs~~ germs grow and produce poisons, and those poisons are a new kind of poisons with which the body has not been accustomed to deal; so the body has not a suf-



ficient amount of these antitoxins on hand to destroy those poisons at once; but these poison glands go into training, and each day they make a little more, a little more, and a little more of these poison antidotes, and by and by they become able to make a sufficient amount of poison antidotes to destroy these poisons, and by rendering the body incapable to support the life of these germs, the germs die off. That is what brings the crisis in pneumonia. You know if a man lives over the fifth, or sixth, or seventh day in pneumonia, he is pretty sure to recover, because the crisis comes. Before that is done, the different organs get better, breathing becomes easier, fever disappears, and the man <sup>suddenly</sup> seems ~~xxxxx~~ transformed almost from a corpse to a thriving, living human being. In diphtheria if a child lives for a certain length of time it is likely to recover because these antitoxins are formed.

A very wonderful discovery has been made, and that is that a horse can be trained to make these antitoxins in such a great quantity that his blood can be used for the purpose of helping a child out. Some diphtheria poison is put under the horse's skin, and after a few days a larger dose is put under, and so the horse is put in training for several months until by and by that horse's glands have been trained to make such large quantities of ~~xxxx~~ ~~xxxxxx~~ these poison antidotes that the serum of the horse's blood is very powerful, contains such a great quantity of these poison antidotes, and even a small quantity injected into the body of a child with diphtheria will <sup>introduce</sup> ~~xxxxxx~~ such a quantity of poison antidotes into the child's body that the diphtheria will be driven off, and the child's life saved. The philosophy is not perfectly sound in all respects, yet it is better for the child to have antitoxin injected than to die. Some mischief comes from it, but on the whole it is a fortunate discovery; but the body ought to be able to make these



new antitoxins, and when Adam was alive and walked a proud king on the surface of the earth, he was able to make these antitoxins in sufficient quantity so that no germ could live in his body. His cells were so strong, so hardy, so well that no germ could live, ~~as~~ in him, so he was proof against all germs.

Here comes a man down the street, he is a pugilist, that man is training for a prize fight, he is going to have tomorrow, may be it is Fitzsimmons prepared to fight Jim Corbett; that man in his strength and vigor, and marvelous physical power,--his blood is so clean, so pure, so strong, his nerve cells are so mighty with vitality, so full of vitality and vigor that germs could not live in him. You never heard of a prize fight being declared off because a man got a cold and could not do his part. A man that is ready for a prize fight is ready for anything. A man who is thoroughly in training so he is competent to meet the champion of the world in fistic encounter neednot be afraid of germs. He could not get pneumonia, or typhoid fever, could not get cholera anyhow. Some time ago a healthy man swallowed half a pint of cholera germs, and they did not do him a particle of harm. He did not believe in them, and he proved it by drinking half a pint of cholera germs, and they did not do him any harm at all. Another man took a tea-spoonful, and they killed him.

I might talk two or three hours more about how the body defends itself against disease; perhaps I will be able to work in a few more points at another time, but I want to draw a moral to this before I leave.

What is it that keeps the body in such a condition that it can defend itself against disease? You see from what I



have said nobody could get sick until after he was already ill. You have heard of the Irishman who did not like a certain doctor's medicine because it took him so long a time to recover after he got well. The doctor said, "You are well, you are ~~not~~ well; you don't need me any more"; but he was still weak and did not recover, and it took him so long to recover after he got well that he did not like the doctor's medicine. That is one of the characteristics of this method of treating disease, it leaves a man in such an unrecovered state, though he may not be still suffering from the disease. That same condition existed before that man got sick. A healthy man can not get sick. A healthy man does not get sick unless a log falls on his head or a house falls down on him, or something of that sort. A healthy man can not be injured by germs or by any of the ordinary vicissitudes of weather, or other exposures he comes in contact with; he need not be afraid of those things, because the body is able to defend itself.

How is it that a man gets ill down to the point where he is an easy prey? It is by abuses. It is by disobedience, it is by sin. What does the Bible say about that? What does the Bible say is the penalty of sin?--Death, isn't it? "The Soul that sinneth it shall die." The Bible says that. The soul that obeys shall live. Moses said, Do these commandments, these statutes and judgments and live. Now, my friends, that is just as much the word today, and just as true today as it was four thousand years ago. Just as certainly as it was his word then, it is his word now,--Obey and live; sin and die. And there is no man who gets sick that does not get sick as a consequence of sin, as a consequence of disobedience.



Now let us see how it is: a man eats meat, digests it all right, does not feel any discomfort in his stomach but he is fleshy, looks well, his lips are red, and he thinks it is doing him good. What is happening? Every day that man is storing up fourteen grains of uric acid for every pound of beef he eats. That fourteen grains of uric acid that the man is storing up in his body is just simply so much of death he is storing up,--so much death, poison. By and by the uric acid will be stored up in such a great quantity in the body that the blood can not hold it any more, and pushes it out somewhere, into the joint, perhaps the big toe; then he has an attack of gout, or may be it is his knee. Then it is rheumatism. Then he says, "I guess I took cold; I overdid; I have been on my feet too much." He asks the doctor if ~~xx~~ he should not make a change of climate. He thinks it is a cold, but the real cause is further back. It ~~xx~~ may be it is sciatica, or neuralgia, or melancholia, or a confused brain, or any one of a hundred other things I might mention, gall stones, or bladder stones, or kidney stones; or it may be simply premature old age. He goes to a doctor, and the doctor feels his arteries, and says, "Your arteries are hard." A man came to me at the Sanitarium, I felt his pulse, and I said, "I am surprised to find you so old." He said, "How old do you think I am." "I should say you are about ninety." "O, that is a great mistake." "I am only 55." "Well," I said, "your pulse says your are 90 years old at least, perhaps one hundred years old. I can feel the break in the arteries, just like a pipe stem. I could feel it in his artery, so I knew he was old. I said, "You have got to be wonderfully careful of yourself. You have got to



live in a glass case the rest of your life. One of these days your muscle will give out." "O," he said, "I am strong." "But," I said, "you have got to give several months careful attention to your health or you will die speedily." "O," he says, "I can not think of it." Finally I persuaded him to give six months to the care of his health, but he must go home and fix up his business first. He went home and never came back. Three weeks afterwards I got a letter from his wife saying, "My husband went out to the barn to look at the horses, and on his way back he fell dead." An artery parted in the brain, ~~xxxxx~~<sup>cut</sup> off the blood from the vital centers, and he fell dead. If there is a rupture of an artery, that is the way it goes. It is one of the things that comes from uric acid. It is not attributed to uric acid at all. We trace uric acid back and find that out. Thousands and thousands of people are dying from flesh eating without knowing that that had anything at all to do with it. Irregular habits of life, over-eating, sedentary habits of life,--anything that lowers the vitality of the body, that lowers the blood, anything that depreciates the body, prepared the body for disease.

Now there is a time coming when this world is going to be more possessed with disease than it is now. We talk about the plagues. They are all ready to break out now. The only thing that is waiting is for humanity to get a little worse. As soon as humanity ~~ix~~ gets down to a little lower level, these diseases which are now comparatively insignificant will become malignant. A disease that is comparatively mild in a strong, healthy man, becomes malignant in a person that is weak. A



strong child gets the measles, it is a trifling thing, but let that child be a diseased child, let it be a child of a feeble constitution, and let it have the measles, and it will be what people sometimes call the black measles, it has measles in a malignant form. So it is with the whole human family; when the constitution of the race is lowered just a little more, then these maladies which are, some of them, comparatively harmless, will break out with terrible virulence, and the plagues will be in the earth. There are plagues enough to exterminate the whole race on the earth now if only the vitality of the race is lessened just a little more.

Disease is increasing with remarkable rapidity. Insanity has increased 300% in the last fifty years. All would become insane, idiots, lunatics, imbeciles, in 200 years. The race is deteriorating in other respects as well. So if we want to be protected from these diseases, the thing to do is to obey. We can not expect that any amount of faith, no matter how earnestly faith is exercised, is going to build a wall of protection around a man who is dissipated, who is living in violation of light and truth. God has given us light and truth, and this truth may be our shield and buckler, it may protect us if we live up to this truth so that our ~~strength~~ blood will resist disease, so that we have bodies that can not be assailed by germs or disease. There is not anybody who has got there yet. May be we have not got truth enough yet, but when the time comes that men are obliged to live among the conditions described in this scripture which I read tonight, when a thousand shall fall at thy side and ten thousand at thy right hand,-



when we come to that position, my friends, there will be some people who have light enough and truth enough, who live near enough to God, near enough in harmony with God's laws so that they are proof against disease, so that his truth will be their shield and buckler, so that they can live under the shadow of the Almighty, which means in harmony with everlasting truth.

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## THE SANITARIUM METHOD.

A Stereopticon Lecture in the Battle Creek Sanitarium  
Gymnasium, Thursday, Nov. 19, 1903.

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by J. H. Kellong.

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The great poet, Goethe, remarked,

"There is nothing in the skin which is not  
but what is in the bones."

so, in looking at the bones, though they are not very beautiful we will try to imagine the external rather than the internal formation of man. The bones are the foundation of the body; they are the framework upon which the rest of the body is hung. They are the pillars of the house in which we live. The bones are a great deal more interesting than they look. When one looks at a skeleton, he says, "How ghastly it is!" When you come to look at each individual bone, one is led to exclaim, "How beautifully useful, how wonderfully adapted it is to the purposes for which it was designed!"

We find the bones all covered with ridges, and each ridge marks the point at which the muscles or tendons are attached. We find besides that that here and there in the bones are little openings, and these openings give passage to blood vessels which pass into the interior of the bone through the hard covering; and in the large ends of the bones, the heads of the bones, and in flat bones like the sternum, in all expanded portions of bones there is a loose, spongy like structure which is filled with red marrow, and this red marrow has a wonderful function to perform. It is this red marrow which makes the blood which flows in our arteries and veins,--all the healing power of the blood, in which, the Bible says, is the life. It



is manufactured in the bones. There is continually going on a creating process in the bones, manufacturing blood vessels at the rate of eighteen million a second. Every second of our lives, millions of these little red cells which we see here on the screen are manufactured in the bones; hence the importance of having healthy bones; hence the importance of having large bones, and bones which are well supplied with blood; hence the importance of having large bones and large knuckles, strong bones, active bones.

You can always tell a laboring man by the looks of his hands, and a laboring woman by the looks of her hands. I remember some time ago I had an experience in Chicago. I was just coming out of a large church where I had just been giving an address, and I met a man at the door who said, "Doctor, I want to speak to you a moment; I have been waiting for an hour to see you." We passed along down the street and he whispered in my ear. He says, "I am a pickpocket. I came here to this church to pick pockets; but after hearing what you said, I concluded that I would not pick pockets, and that if I had a talk with you, maybe you would help me." He said, "Doctor, I have just gotten out of jail down there in St. Louis. I have been confined six months for picking pockets, but I have decided to turn over a new leaf. I have been engaged in hard laboring; but I have made up my mind to turn over a new leaf, and I thought perhaps you would help me to get a coat or some thing to wear."

Shortly afterwards I met an old friend of mine, Mr. Tom Mackey--some of you have heard about him. He is an expert about such things--used to be a pickpocket himself; so he knows about it. He is not a pickpocket any longer, he is a changed



man. He is a missionary and a good one; I would trust him with everything I have got on earth; I would know it would be perfectly safe.

Well, I met Brother Tom Mackey, and I spoke to him about the man. He said, "O, he is working a game on you; he is just working you. Don't you have any confidence in him at all. Didn't you notice his hands?" "No," I said, "I did not observe the hands." He said, "I did; I noticed those hands. Those hands have never been engaged in hard work. They are just adapted for picking pockets." I took a glance at the hands then, and saw that the fingers were long and slim. Look at your own joints when you get where there is light, and if you have been engaged in hard work at any time in your life, when you were growing up, you will see the joints are large. The reason is because when the muscles contract upon the bones, they press the joints together hard, and the effect is to stimulate the development of the joints. The use of the muscles brings blood to the bones, and as the blood flows into the bone it causes the bones to grow. Boys who do not have any exercise grow tall and spindling. Their bones do not have any strength. Their bones are not resistive. They are very likely to be bruised, and get the white swelling of the bones, at the joints. The joints of the fingers and the joints of the limbs are some of them not well developed. The joints of men are larger than the joints of women for that reason. But a laboring woman, as well as a laboring man has large joints, perhaps not quite so large because the bones are smaller. If the joints of the bones are large, the bone making power of the body is great. This is one of the great advantages of exercise; it leads to the development of the bones.



provides a splendid blood supply for the growth of the body. You see, my friends, how important this is. It is only recently that I have thought about the importance of having large bones so as to have large blood making power. That is the only way it is possible to have it, by having large active bones.

Some time ago I had a patient here suffering from a certain blood disease, in which the blood was being destroyed rapidly. It was rapidly disappearing. In the treatment of this case I applied the x-ray to the sternum, which is a blood-making organ, and to the arms, and the knees, and the other large joints, and there was a remarkable improvement within a very short time in this case. I have been making further observations upon the same subject. There seems to be an increased blood-making power. So in every case I have in which there is a large loss of blood, I shall certainly recommend the application of the x-ray to the joints, so that we may stimulate the blood-making power,--and not only the x-ray, but other measures. That is one of the great advantages of massage--it stimulates the blood-making power. One of the advantages of the application of cold water is that it increases the flow of the blood to the limbs and joints, and by increasing the blood movement, increases the blood making power.

Here we have the muscles. There are two hundred bones and five hundred muscles, for there is more than one muscle to a bone. The muscles are arranged in groups, about thirty large, important groups of muscles. The strength of each one of these groups may be tested with our dynamometer. Many of you have had your charts made, and you know that these charts signify. They show the muscular balance, of the muscles what muscles are strong, what muscles are large, what muscles are



weak, what muscles are equal to the average, and what muscles are below or above the average. These muscles individually also have very important functions. They are not simply engines for the purpose of lifting and propelling the body, moving us about from place to place; for the muscles have other very important functions. One of the functions of the muscles is to manufacture heat. The muscles are the furnaces which maintain the heat for the body. The muscles also serve to clothe the bones and protect them. Every time there is a muscular movement there is a certain amount of heat produced. If a man does work equivalent to ten units of heat--not ten units of work, but ten units of heat, that would be about 7720 foot pounds of work. This would amount to ten units of heat, or Calories. When one does that amount of work, he has at the same time manufactured forty units of heat, for with every unit of work, every Calory spent in work, there is produced at the same time four Calories of heat; so we see very readily why it is that when a man exercises he gets hot. If one exercises very violently, the very exercise he is taking increases the vital forces in his body; that is, it manufactures heat. Taking exercise generates <sup>not</sup> heat. That is simply stimulating the heart, and increasing the movement of the blood into the extremities in general, the feet, the arms; but it is the actual creation of heat, so that the temperature of the body is raised. If a man runs three or four miles, his temperature may be raised two or three degrees. I found the temperature of a man  $101\frac{1}{2}^{\circ}$  after a vigorous and somewhat prolonged run. Bicycle riding in summer time especially raises the temperature of the body. So one becomes actually over-heated. Such a man has actually been



over-heated, his temperature has been too high; it was produced by the work of the muscles. If one is exposed to the sun, or to excessive heat, to great heat in a warm room, the effect will be to excite this heat-making process in the muscles, so that the muscles make heat faster than they ought to. The excess of heat elevates the temperature of the blood, and makes the body too hot; and hot weather has the effect to excite the heat production and increase it still further. The exercise burns up the uric acid. A great part of the uric acid in the body is consumed in the muscles. Bulk for bulk the liver consumes six or seven times as much as the muscle will, but considering the great quantity of muscle structure of the body, the muscle structure destroys the greater part of the fifty grains of uric acid produced every twenty-four hours. This uric acid-destroying power of the muscles is not active unless the muscles themselves are active, because when the muscles are idle there is very little blood moving through them; but as soon as the muscles are put into action, immediately the blood flows through in a rapid stream, and this rapid stream excites the activity of the muscle just as the water pouring out of the miller's pond operates the wheel. The blood is the stream which operates the wheels of life, in just the same way as the water of Niagara operates the great turbine wheels which manufacture the enormous quantities of electrical power generated at the great waterfall. In our bodies, it is the blood which turns the wheels of life, the blood which stimulates the muscles to the creation of heat, excites the activity of this process in the muscle.

There is much more to be said about the muscles.



Many things you know; but I thought I would say something about the muscles that you did not know. I will leave the other things that you hear every day for another time.

Here we have a glimpse of the nerves,--the wonderful telegraph wires of the body by which messages are sent to the brain, to every part of the body, and by which also return messages come rushing into the brain, the central station, from all portions of the body. The brain might be compared to the central telephone station, as well as a telegraph station, and as various impressions are made upon the surface of the body, upon the eye, the ear, the sense of taste, of smell, of touch, the temperature nerves--hot and cold--all of these sensations that are created upon the surface of the body are so many voices speaking to the brain, and suggesting to the brain that something needs to be done. For example, there is an offensive odor; it violates the nose; that is a suggestion to the brain that the legs, the feet ought to be set in operation to move away, or the hands ought to be set in operation to in some way destroy this unpleasant odor. When there is a pleasant or agreeable odor, for instance, as of the cooking of food, savory food which is served ready for eating, that is a suggestion: Here is something to eat; here is food, and you reach out and take it.

The sense of smell and the sense of taste never hesitates; it is active night and day. It says, "Pluck the luscious fruit and eat it." It never says to go away down into the ooze and slime of the ocean and raise up an oyster and eat it, but it says, "Pluck the fruit, and such things as are beautiful." If we crave any other things it is because of



wrong education, because our tastes have become perverted.

So it is if there is a sense of cold, the message is sent in from the skin to the brain; it is a demand upon the brain that something should be done to regulate the heat production; that more heat should be generated in the body lest it should become chilled or destroyed by frost; and the brain immediately sets to work to do those things which are necessary. If the chill is very considerable, then the suggestion made to the brain is that the muscles should be set to work to generate heat so as to warm the body up, and presently the teeth begin to chatter, and the muscles begin to shake until the body is set into rhythmic activity, muscular contraction involving all the muscles; every muscle of the body is set into operation by which the heat is generated and the body is warmed. So, when you shiver and say, "I am taking cold", it is a great mistake; you have already taken the cold, and the muscles have set to shivering in order to warm you up, to get rid of the cold; so do not try to stop the shivering, but help it along. Set yourself going. That is the quickest way to stop shivering,--set the muscles to work and that will help to generate the heat, and that is the quickest way to stop shivering.

Now as you see here, the brain is connected through the spinal cord and through these nerves, with every part of the body. In fact the brain occupies the whole body. If we should take away from the human body the bones, the muscles, the blood vessels, everything except the nerves, you would still see a perfect human form, because the nerves & their minute subdivisions and ramifications are so minute and multitudinous that they actually fill the entire body, and the body



would appear to be still as perfect as though nothing had been taken away, when there is nothing but the nerves left, the multitude of minute divisions and subdivisions are so great.

There are nerves connected with every single organ in the body. In the very minute sweat glands in the skin there are millions of these nerves, which put end to end would extend over three miles; and if these little ducts were spread out flat, if they were slip up into little tubes and spread over a flat surface, they would cover a flat surface of more than eleven thousand square feet, so enormous is this area. Every hair in the skin has a nerve supplying it. Besides there are millions upon millions upon millions of nerves that have charge of the sensations of pain, the sensations of heat, and the sensations of cold, and of pressure, of weight--all these are different sensations and have different sets of nerves. We have sometimes said we have five senses, but we have more than five senses,--we have seven or eight at least, and perhaps more. Nobody knows yet just how many senses we have--including common sense we probably have nine, but that is sometimes lacking. These very sensibilities of the skin in which there is such a numerous variety which operate in so many curious ways, are all of them working for us, telling us when we have gone astray from the right road. When we suffer pain, when we are doing wrong things, they say to us, "Cease to do evil; learn to do well." When we are suffering anything of an unpleasant character, it is because we have been sowing bad seed, and now we are reaping the harvest. "Whatsoever a man soweth, that shall he also reap." We do not have pain unless we have been sowing for pain. We do not have weak or diseased



bodies unless we or somebody else has sown for them. That is a good thing for us to remember. It should make us patient in our afflictions when we ~~consider~~ consider that perhaps we ourselves are responsible, or if not we, some near friends, possibly our parents or grandparents.

All these structures--bones, muscles, nerves, depend upon the constant supply of pure, healthy blood in order that they may be well. Here we have an illustration of the circulation. You see that the heart as well as the brain occupies the entire body. If all the rest of the body, skin, bones, muscles, nerves, everything else were removed from the body with the exception of the heart and the blood vessels, and the arteries with their capillaries, you would still see a perfect human form. As I said in relation to the nerves, you would see a complete body standing just as fit, just as large as ever, the entire body intact, because the blood vessels divide into such an immense number of small subdivisions, and the capillaries so small that only with a microscope can we see them, and many of them scarcely more than one twenty-five hundredth of an inch in diameter. If these vessels were arranged side by side, it would take 2500 of them to make a band an inch in width. It seems incredible, yet this is true.

Here is a representation of the manner in which these cells are divided, and through which these individual blood corpuscles travel one by one. The arteries are just large enough to let the little blood cells through. Here is the heart which does the work. There are really two hearts, the right heart and the left heart. The right heart pumps the impure blood, the blue blood in from the body, and the left heart pumps the red blood all through the body. The right



heart pumps the impure blood after it has returned to the heart into the lungs for purification. Here are the valves of the heart. <sup>illustration</sup> This cut shows the heart cut, part of it cut off, showing just where the valves of the heart are located. Here are the four valves--the mitral valve connecting the left atricle with the <sup>left</sup> right ventricle of the heart, here is the tricuspid valve which connects the right atricle with the right ventricle. Here are the three little semi lunar valves. One of these is the aorta, and one is the pulmonary artery. The blood is forced out into the aorta on the left side through this valve here, and when the heart ~~contracts~~ contracts the blood can not get back, for the valve is closed up, but the blood is forced on up through these valves, and goes on all over the body. In the left side the same relation exists between these other two valves. The continual operation of this living pump is a condition ~~absolutely~~ absolutely necessary for life. Seventy times a minute this wonderful pump does its work, contracting, dilating, contracting again--never stopping! If the heart should stop a minute, that would be the end of your life. The heart must never stop, for as soon as the heart stops the blood stops, and as soon as the blood stops it coagulates; when the blood ceases to move it coagulates, it clots in the vessels so in a very short time it would be utterly impossible for the blood current to go on, even if the heart should stop.

Here is a large view of the blood which will make plainer the things I want to speak about. Here is a larger view of the heart, you see. You can see the right heart here, and the left heart over here. Here is the aorta, by which the blood is sent from the left heart all over the body. Here are



the blood vessels as they appear under the microscope. Here are the red cells; then there are the so-called white cells. These white cells have been colored by coloring matter, so as to make them distinguishable. Here are the white cells with polymorphous cells. Here is another kind of cell which looks very much like raspberries when they have been colored. The colors have been applied, a blue color and a reddish color so we can see these little points. There are a number of other kinds of these white cells, and there is more than one kind of red cell and not simply the two kinds, red and white, but there are several varieties of white and several varieties of red cells. These have some wonderful properties. Here are some parasites in the blood. Here is one inside a red cell eating it up. This is the malarial parasite, that causes malarial fever. These animal parasites are generally introduced to the body by mosquitoes. Certain varieties of mosquito become infected with these parasites from the marshes, and the entire body of the mosquito becomes filled with these parasites, and they get into the poison sack of the mosquito. When the mosquito bites he puts a little virus in so as to dilate the blood. That is a curious thing isn't it? The mosquito puts that virus in first of all to dilate the vessel so that he can get more blood and get it easily. Sometimes an oil well borer, the man who is after oil drills a hole, and then he puts down some dynamite and explodes the dynamite, he shoots his bored well, and in that way he makes a large opening down there, and increasing the size of the opening, causing an accumulation of oil, and then the well begins to flow. The mosquito does the same thing. He puts in a little dynamite



in the shape of virus. The virus increases the flow of blood just as the dynamite increases the flow of oil. In putting that virus in he runs some of these parasites in, and when he takes the virus up in the blood, he does not get them all back again; some of them get out into the blood, into the vessels, and in that way the body is inoculated. Here is one that has gotten inside of one of these red cells in here, and is eating it up. You can watch them in the little cells through the microscope, and see them gradually consuming the cells, and they consume these cells so rapidly that sometimes they will eat up a third of all the blood in the body within a few days. That is the reason why a person with malarial fever grows pale and weak so very rapidly. That is why one feels so very weak after he has had a run of the fever. It is because there is a special development of these parasites, and the whole body is filled with them, and they are making great inroads upon the red cells. After they have lived inside the cell wall a while, they get outside, and here is one grow up outside. It gets to be a great, dragon-looking creature. It looks very much like an octopus, doesn't it? Notice these great arms here. In this form it is ready to break up into a great number of pieces. <sup>Whether</sup> These little particles all become new parasites or not, nobody knows.

We must know a lot more about this wonderful blood. As I have said, "The blood is the life"; "the life is in the blood", and the blood was held so sacred on this account by the ancient Jews that under the commandment they were never permitted to eat the blood. If a man ate the blood he was cut off from the congregation. I think that means he was considered



unfit to live if he committed the crime of eating blood. At the present time among our heathen gentiles, this custom of eating blood is not so very uncommon, and yet the command forbidding the eating of blood applies to Christian people just as much as it did to the Jews. In the fifteenth chapter of the Acts, and the third chapter of Galatians you will find an account of how men went up into Galatia twenty-five or thirty years after the beginning of the Christian Era, went up to Jerusalem and submitted this question whether blood should be eaten, and how far these laws should be observed by Christians. It was brought before the great council at Jerusalem, of which James the brother of the Lord Jesus Christ was president, and James gave the verdict after two or three weeks considering the question: "It seemeth good to the Holy Ghost and to us that we should lay upon you no greater burdens than these", and went on to enumerate the eating of blood, the eating of things strangled, etc. Those things were absolutely forbidden. So in eating blood, we are actually violating a law of Jehovah, given to all men, to the whole human family through Noah. When Noah was given permission to eat flesh, the Lord said to him, "Eat the blood which is the life thereof, thou shalt not eat of it." Yet, I have seen civilized men sit down to the table and eat beefsteak that was swimming in blood. My friends, you would not like very well to take a piece of bread, soak it up with blood and eat it, you would think that would be a terrible thing. Yet a piece of beefsteak soaking with the blood, the blood oozing out of it is exactly like a piece of bread that has been soaked up in blood. They are just alike. There is the same prohibition against given in the Bible which was given to the Jews and reiterated to Christians by the



Apostle James speaking in behalf of the first Christian council at Jerusalem, within a few years of the death of Christ himself. So the blood is a wonderful thing, a sacred thing. It is this life in the blood which heals the body, which creates anew the parts that have been weakened by disease. When a sick man gets well, it is the blood which heals him. When we sleep at night, it is the blood which recreates the body, repairs the damage that has been done by work.

It is wonderful how the blood circulates through the body. Here are the red and white cells. This shows very much what we see when we look through a microscope at the thin web of a frog's foot spread out. You see those elliptical red cells rapidly forced through the blood vessels, and the white cells clinging along the sides of the walls. In a man the white cells are much larger than the red cells, but in the frog's blood it is the other way. This movement is going on in all the tissues. There is not a particle of tissue in the body, however, as big as the head of a pin, of soft tissues which has not thousands upon thousands of these minute vessels, filled with these wonderfully interesting little bits of blood cells. The red cells carry oxygen, but the white cells have another office which I will tell you about shortly. So it is very important to study the blood, and in the Sanitarium method one of the first things we undertake to do when a patient comes is to study the blood. The next morning after you arrive here you are invited to come down to the medical office, and a doctor steps up to you in a very amiable sort of way, and suggests that he would like to get a little of your blood, and you immediately hold out your finger, and a little sharp point is thrust into it, and you are bled to a small extent. That



little drop of blood was carefully put into a little tube, a portion of it was put on little slips of glass, and taken over to the laboratory and examined, and a portion of it was measured with a measuring glass and was very carefully counted, spread out on thin glasses so that the walls were very light, so that the corpuscles were all spread out and very carefully counted, and in that way it was ascertained whether or not you had the proper amount of blood; if you had the proper amount of blood you had between four and five million cells; and if you did not have the proper amount of blood, you might have only two million, or even one million cells. We had one man here who had only four hundred thousand cells, when he ought to have had five million.

Another thing is to determine the condition of the heart which circulates the blood; so when there is reason to believe that the heart is feeble, the character of the pulse is ascertained by a little machine placed upon the wrist. The machinery is set in operation, and a little smoked paper passes along, and a little stylus writes a story. ~~xxxxxx~~ As the heart contracts, this little mark is made, and as the heart comes down, these other little waves are formed, and so on, the stroke is just the same. ~~xxxxxx~~ This shows the character of a healthy pulse. Here is the pulse of a man who had been a drinker, accustomed to use liquor; his heart had got delirium tremens. Here are some obstructed points on the down beat; here is a broken beat; the whole thing is ragged and broken, and is weak, feeble, excitable and irritable. Here is the record of another pulse. I examined a pulse just like this a day or two ago. I got a tracing which was very



much like this. Here is a normal beat; another normal beat; and here are two or three small beats that are imperfect. Here is another normal beat, and two or three small ones; here is a beat that is not exactly normal. That indicates a feeble and weak condition. The heart can contract but it can not hold the contraction. It has not the firmness to hold the work which is done. These and other observations are made upon the heart. This makes a record of the heart. From time to time another record is made so we can see exactly what improvement is taking place.

Here is a little instrument by which the strength of the heart is determined. We have the dynamometer by which we determine the strength of the biceps, the triceps, and these large muscles of the legs, arms, and trunk, and we add the strength of all these muscles together, and in an average man the strength ought to be somewhere about five thousand. In an average woman about 2500. The average woman has just half the strength of the average man. If the legs are the proper strength they should be half the whole strength of the body, and the arms should have a quarter, and the trunk another quarter; the diaphragm should have a certain strength, the lungs a certain strength; but we can not with the dynamometer test the strength of the heart; that is a thing we can not do. We require special apparatus for that, and that we have in the sphygmometer. This is a means by which we can determine the actual power of the heart, and register it upon the instrument. When the pressure is very high, when it is much higher than that, that does not indicate a favorable condition, but it indicates that the heart is working against too great odds;



there is a plugging of the vessels, probably with uric acid. These delicate vessels have become, as Dr. Haig has shown, plugged up with uric acid, and that makes a high pressure. We can learn some of this with the sphygmograph, but we can learn more with the sphygmometer.

We have here a diagram of the circulation. Here is the right heart and the left heart sending the arterial blood around throughout the body. It comes around to the right heart, then through the right heart, then is sent around to the lungs to be purified, and comes back to the left heart, and that makes up the circuit, you see. There is one circulation through the body in general including the lungs; another circulation through the lungs. This circulation of the blood must be maintained continuously in order that the body may be kept in proper order, and the sphygmograph tells us how strong the heart is, just how well it does its work. It also tells us whether there are any serious obstacles or obstructions. If there is an obstruction, it gives us an idea of what we ought to do to relieve it.

Here we have another little side show. There are three circulations represented here, you see; one from the lungs to the heart, one from the heart to the lungs again, and here is another circulation. The blood is gathered up into a single vein and sent to the liver, and it goes from the liver back to the heart. This is called the portal circulation, which you sometimes read about, and this is a special circulation here with the abdomen. We have one circulation in the body at large, that is systemic; another circulation in the chest, the pulmonary, or lung circulation; and another in the



abdomen, the portal or the liver circulation--three great circulations in the body. We may have an obstruction to the lung circulation. Then we have bronchitis, or chronic catarrh of the lungs, chronic bronchial catarrh. We may have an obstruction in the liver, then we have dropsy in the abdomen. We may have an obstruction in the body in general, all through the body, then we may have general dropsy; or we may have an obstruction of the kidneys that will occur when we have general obstruction; so whenever we have general dropsy there is likely to be kidney disease, or if there is not it is coming pretty soon. Dr. Haig has shown that obstructions of this kind are <sup>commonly</sup> more ~~likely~~ caused by uric acid than than by any other cause, that uric acid is indeed the great cause of this kind of obstruction by which the heart pressure is raised, the work is increased, and thus is produced in various parts catarrhs of all kinds; nasal catarrh, lung catarrh, stomach catarrh, intestinal catarrh, catarrhal condition of the skin; when we have catarrh of the skin, or similar skin and other diseases, it is caused by uric acid.

I received from Dr. Haig the other day something of very much value,--a copy of his latest edition of his work on Uric Acid. This is the sixth edition and has just been published. The book has had a very wide circulation, and probably has done more in the way of modifying opinions of physicians than any other medical book which has ever been published. Dr. Haig takes a very strong stand against the employment in diet of meat or any food substance which will increase the uric acid in the body. He says that to the poison habits of men and women is due the fact that the average length of



life is only forty or fifty years, whereas it ought to be a hundred years. Dr. Haig by his study of uric acid has been led to renounce entirely the use of meats of all kinds, and the use of tea and coffee and all sorts of stimulants. He has been led to renounce these things altogether, and to live upon a simple dietary such as we use at the Sanitarium. He has been led to these steps, and has finally taken his stand thoroughly upon the non-use of flesh, and the use of <sup>natural</sup> ~~raw~~ foods provided for us in the natural world, in the natural creation. A knowledge of the different circulations is fundamental in the practice of the so-called Sanitarium method.

A word with reference to the blood and what the blood is able to do. Here it is. This represents some of these small blood vessels enormously enlarged so that you can see the stream of red cells going through the center. Here are the vessel walls between the black lines, and here are the white cells which are slowly creeping along the walls. That is the way they creep along. Outside of the tissues are some germs that have been introduced. See what happens. As these white cells come creeping along, going slower and slower until they come opposite the germs, then they stick out a foot just as an earthworm reaches out in its tracks and drags itself along the ground; in the very same way these white cells creep along the walls of the vessels. They are not swept along with the blood vessels, but they adhere to the walls, unless the blood runs so rapidly that it sweeps them off. When they come opposite to these germs, the cells go slower and slower, and slower until they get directly opposite these germs; then they stop; the cell makes a little girlet of itself, and bores a hole



through the vessel wall and then creeps through the hole, just as you can draw a handkerchief through a ring. In the same way this white blood cell tucks itself through the little opening it makes in the vessel wall, and after it gets through the wall it seals up the opening so the vessel does not leak, and then proceeds on its way after a germ. Here you see one making for a germ. It has no eyes with which to see the germs; it has no nose with which to smell the germs, but it has a power somehow to know where these germs are so that it goes straight to them; it does not go hunting aimlessly about, feeling about in the dark to find the germ, but it travels straight to the germ. When it finds the germ it opens itself up, makes a mouth of itself, and swallows the germ. Here is one that is just opening its mouth; here is one that is already swallowing the germ; and here is another swallowing the germ. The germ is swallowed inside and is actually eaten up and digested. It is proper for the ~~germs~~ cells to eat these germs, for the germs are vegetables; so they can be disposed of in this way with perfect propriety.

This is why the blood fights germs. If it were not for this action of the blood, we would be killed off by germs in a very short time. Our skin is covered with germs. We take multitudes of germs into the body continually with our food, and through our noses, until it is a wonder that we live. The reason why we live is that this wonderful blood, and these marvellous cells destroy the germs. We take in multitudes of germs when we eat high meat, and cheese, which is swarming with germs. In a single pound of cheese there are more germs than there are people on the whole face of the earth.



--multitudes of all kinds of germs, many kinds of germs, more than forty thousand different kinds of germs. These different sorts of germs found in the cheese are what gives the cheese its flavor. Milk which is a little bit stale, which is a little old, which has sediment in it that came from the barnyard is full of these barnyard germs and other kinds of germs. The blood is fighting these off continually. By this means, the study of the blood, we are able to know what is the power of the body in defending itself. When the blood is feeble, then we do not have as many cells as we ought to have, as many white cells, then we know the resisting power of the body is diminished. When a person is anemic his blood is poor, his digestion is poor, and he is likely to have consumption, Bright's disease, to contract any melody that is ~~any~~ may come along, because he has lost the power to defend himself against these influences, so there is nothing to keep him ~~from~~ then from coming in, to hold them at bay, so that his entire system is weakened.

We have here a representation of healthy and diseased stomachs. We can examine the stomach with the stomach tube, and we can tell by what we draw out of the stomach whether the stomach is in this condition, or this condition. Here is a man whose stomach is not healthy. He has an excessive production of mucus, and has this condition of digestion, and by and by he has chronic catarrh. Here is the stomach of an old drunkard. This stomach is also present in chronic dyspepsia. The drunkard has this kind of stomach because it has become dyspeptic from abuse. We may have this same kind of



of stomach from the use of mustard, pepper, peppersauce, chili sauce etc. Pepper has six times the power of alcohol to produce this powerful mischief in the body. Sometimes this is the result of peppersauce, Cayenne, capsicum, vinegar and spiced pickles, and other such unwholesome things. By examination of the stomach by means of a test meal we are able to see just exactly how much the stomach is able to do.

Here is a chart. The stomach runs right through the middle. Anything above this is hyperpepsia; anything below is hypopepsia. In this case it is very close to no digestion-- hypopepsia when it is somewhere between the center and the bottom. This was an extremely bad case. I have seen many such cases that got well. When we find a person suffering from pernicious anemia, with his blood extremely poor, we are almost certain to find this condition present. In fact, about half of all our chronic invalids have a state of hypopepsia, no free hydrochloric acid at all. A person with no free hydrochloric acid in the stomach has nothing to protect himself from the germs that he swallows, because we depend upon this hydrochloric acid to digest the germs, to disinfect the food and prepare it for digestion.

Here is what ought to be a normal stomach. This represents an actual case. When we examine the stomach of any healthy person, that is what we find. Note the zigzag lines, and the lines that are not quite straight, but approaching the central line there. By this method, as some of you know, we are able to show to the eye just what is the condition of the stomach work. Having made these careful observations of the stomach, we are prepared to test the methods which we employ, and then this careful examination follows, a careful



examination of the pulse and of the blood, and of the stomach, and of all the body work--this minute examination of all the secretions and the excretions has enabled us to test, to check our methods of treatment so as to find out right away whether we are doing the right thing or not. If a man has a normal stomach, and the doctor gives him a certain treatment for hypopepsia, and he comes back in a couple of weeks and says, "Doctor, look here; I am worse off than I was at the beginning; I am afraid your treatment is doing me harm," it brings the doctor right straight up where he has to roll up his sleeves and get to work for that man right away quick, don't you see? and do something different. So the doctor gets called right up in just that way. He knows he has got to do a thing that will effect a cure, that will effect improvement; he has got to do something radical, something thorough-going and efficient; and this compelled us in all the different branches of our work to bring to bear upon our patients such efficient measures as will accomplish something promptly and certainly, and the whole aim of our continual effort in this institution is to so verify our methods, and to so check our methods, so criticise our methods as to enable us to strike the nail on the head every time, and do it the very first time without any old out and dried methods which were in use some time ago, years before we had these accurate methods of examination which modern science has brought to our help.

A lady said to me the other day, "O, Doctor," I don't want to take a test meal; can't you tell whether I have got hypo or hyper?" "I can guess at it," I said. "Well," she said, "I would rather you would guess." "Well," I said, "It



will be cut and dried if I guess, and if I give you the treatment that I am going to give you if you have got hyper it will make you better. If you have got hypo. it will make you worse." "All right" she said, "that is the way we will do it. I can not take a test meal nohow." "Well, now," I said, "it may cost you a couple weeks lost time." She says, "I can stand anything better than that test meal or swallow that stomach pump." I said, "I would not have you swallow that stomach pump for anything; I don't want to lose it; it is valuable." I consoled the lady. "I said, "Well look here; you don't have to swallow the whole thing. All you have to do is to swallow the tip end; that is all. The rest of it follows down." "All right" she says, "I guess I will try it." So she had the test meal and is getting along all right. Some of you have had the old cut and dried method, and you know what it is. You have had enough of it, and you know what it is.

The Sanitarium method is struggling continuously to learn to do the thing exactly right the very first time, and we have got our methods perfected to such a degree that we know what we are doing. We know what to do for hyperpepsia; we know what to do for hypopepsia; we know what to do if there is too high pressure in this place, or too low pressure in that place. . We know exactly the things that will right those conditions. So with all the various conditions of the body. We have been able to train our methods down to great accuracy; we can aim our guns right, and the only thing that is uncertain in every case--the treatment is not a matter of uncertainty at all; the disease is not a matter of uncertainty; the thing that is a matter of uncertainty is, how much



vitality, how much resistance has this patient got? how good blood has he got? How much power is left in his body to react, to recuperate, to rebuild? If you plant ever so good seed in poor soil you want have a good crop. So it is with certain patients; they are like sandy soil, you can't raise very many potatoes there, and we have got to wait for the crop, we have got to see what the soil will do. We can give something of a guess when we look at a patient, but we do not know for sure. We can give something of a guess at the soil, but we do not know for sure.

There is something further. This refers to nerve cells. This is a healthy cell; this is a diseased cell. The healthy cell is all covered over with little, minute twigs, looks like a great big root here with a great number of branches growing out from it. That is a Purkinje cell. It is copied direct from a cell in a brain. It sprouts out on all sides, a great, round mass. No tree ever had so many twigs as this cell has. You could not even see it at all if you should put the whole tree on here. It gives a general idea. This cell communicates with other cells in a curious way. Here is a little stem of it that runs away off. The little fingers of the cell run in between the twigs of another cell like ~~xxxx~~ this; those little twigs come in contact, and in that way one cell communicates with another. Here is a cell that has become diseased by the use of alcohol. Through the use of opium, arsenic, or any other kind of poison these little twigs you see are all shriveled up, and become simply with few or no branches. This cell was copied from a cell found in a drunkard's brain. Is it any wonder a drunkard loses his mind by and by the brain becomes deteriorated morally and mentally



ly as well as physically when the brain cells are shriveled up like that, and all these little twigs by means of which it communicates with other cells, are destroyed. Notice what an infinite number of combinations can be made when every twig is active and touching others. Every one of this vast number of nerve cells found in the brain with these millions of twigs--see what a multitude of combinations of cells can be formed if they are healthy. It looks here as though one of these was undergoing still further changes. I do not know exactly what is happening to it, but it looks very much, you see, as if it was getting still further diseased.

This represents healthy cells again--another kind. These are the diseased cells, showing how the blood vessels become diseased. Uric acid has the same effect as alcohol in producing this degeneration, ~~xxxxxxxxxx~~ Paralysis, an increasingly common disease, is the result of meat eating, and a great number of cases, as well as alcohol. This is one of the consequences you see pictured here. Here are some healthy nerves, and you see the little twigs communicating with other cells. Most of the finer twigs are absent in this case, but the general branches are present so that you get an idea, something of an idea of what the different kinds of cells look like. These little twigs are capable of communicating with another cell. It may be on the other side of the brain; it may be far off down in the spinal cord. You see how it is that uric acid can affect the brain as well as nerve cells. The uric acid gets into the blood vessels, obstructs them, and when the blood supply is cut off, the nerve rapidly degenerates. In the same way the liver is destroyed by uric acid and by other tissue



D E D I C A T I O N  
of the  
T R I - C I T Y   S A N I T A R I U M  
M O L I N E , I L L .

3:00 P. M., November 30, 1903.

*Miss*

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Address: "The Principles of Medical Missionary Work as Carried  
on in our Sanitariums."

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Dr. David Paulson.

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To the genuine medical missionary, the gospel of health missionary, the whole world is a mission field. It is not simply those who live in lands of heathen darkness, but wherever there are persons who are violating law--and we find in modern civilization that physical law is being violated almost as extensively as spiritual law is being violated in dark, heathen lands--and the results we see all about us. The 27,000,000 cases of illness we had in this country last year testify to the fact that "whatsoever a man soweth that shall he also reap." Dr. Gould has stated that there were half a million funerals last year that ought not to have taken place, that were wholly avoidable. What an evidence that there is something radically wrong with modern civilization! In fact, it seems as though modern civilization is the wilderness in which chronic invalids have gone astray, and it needs this gospel of health and strength to come and reclaim them and bring them back to health and happiness.

The old dispensation had its cities of refuge. The new dispensation had its good Samaritan who went out to find the one that had been bruised and torn; and why should not



this dispensation have those who are seeking just as earnestly to reclaim humanity, not only spiritually but physically as well, and convey to humanity the priceless boon of physical righteousness as well as spiritual righteousness? A complete gospel affords both; and the primary object of this sanitarium movement is not simply to heal the sick, but it is to carry out a great educational movement that shall prevent a vast deal of sickness. The same amount of effort that is put forth in ministering to the relief of one invalid if put into educational effort and work will prevent five people from being sick. So there has been connected with this sanitarium movement right from the start a great educational, health reformatory campaign. Every one connected with this work, every one who takes the training in our institutions must pledge to God that he will give his life to the cause of God and suffering humanity as educator and healer. Only such are admitted into the courses of training of our institutions.

To give just a glimpse of what we try to accomplish, I will give a little bird's-eye-view of what is comprsed in our Chicago medical missionary effort. Some years ago I overheard Dr. Kellogg talking to one of our matrons who was telling him some things that ought to be done for Chicago to afford to them the same opportunities for health and right living that we have in the Battle Creek Sanitarium system, such as visiting nurses, dispensaries for the poor, free baths and a dozen other different lines of work that ought to be carried on, and he thought it was a beautiful idea, but one which never could be realized. I am glad that I can stand here today and say that not only have I seen all that realized in



darkest Chicago, but even more. We began down in one of the hardest and worst places in the city of Chicago, a place that the Chief of Police said was the hardest and worst part, and we there opened up the first baths in the City--a place where the poor, the tramp, the criminal could come and be cleaned themselves and wash their clothes. We found then that many of those were not filthy simply from choice, but from necessity. Sometimes as high as one hundred and fifty men would stand in the morning in piercing cold winter, not to be fed, but simply to have a chance to be clean.

We soon began to feed at actual cost the suffering multitudes that thronged into Chicago at the time of the World's Fair. Dr. Kellogg would often talk to the men while they were being fed their penny meals, eating the wholesome food that would make clean, pure, wholesome blood in them.

The other day I had the privilege of listening to one who is now the greatest evangelist in the United States, Tom Mackey, through whose thrilling words thousands of men have been reclaimed. He said, "I went in there one Sunday morning when Dr. Kellogg happened to be there. I had had no food, and I was very hungry, and so weak I could scarcely stand upright. I leaned against a post, and Dr. Kellogg sat on a platform talking to the men who were being fed. I sat and sat. I did not have a penny, and finally I said, 'Please, Mister, wont you give me a bowl of soup?' He gave me a bowl of soup. Then Dr. Kellogg said to me, 'How are you, my brother?' I was a poor, miserable, hardened man, and he was a successful physician, but that word cut right through me, and I said, 'That is certainly a gospel message that makes two such men brothers.'

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The Doctor asked me how I knew I was converted. I said 'I used to knock a man down for ten cents, but now I have gone hungry, and have not knocked a man down, and have not stolen.' That was all the Doctor wanted. He says 'Get up here and tell it to the men.'" Brother Mackey hesitated, but the Doctor finally got that man up and he gave his first gospel talk to those men; and he has kept on talking ever since. He has established more than fifteen missions, and as I said, is the greatest evangelist in the United States.

That is only one instance of what has grown out of the missionary end of this work. After a time the visiting nurses work was organized, and after another length of time, the dispensary work was begun. Twenty-five thousand people have visited one of our dispensaries, receiving such advantages as this institution holds out. Then we opened up the men's home. We found out that to help these men and then turn them out in the street was of no special avail. We fitted up a place where the men could come and have their clothes disinfected and have a good bed for the night, and have a warm meal in the morning--all for just a few pennies, and a chance to earn it if they did not have the pennies. Then we opened up a mission where the gospel for soul and body could be proclaimed. The Life Boat Mission has been as a city set on a hill. We opened up our rescue work for women in Clark Street, and there we have been reclaiming our sisters from lives of sin, and found homes where pure helpful influences could penetrate their lives. Many of them are superintending homes of their own, and the light and power of the gospel has been manifested in their cases.



I might tell you interesting stories and experiences of all this work, but I can not. I only wish to say that the work I have been portraying is one with this great sanitarium movement. It is one of our efforts to reach out, not only to help the man who has gone astray who lives on the boulevards, but also to reach down and help, to reach down a helping hand to the poor wayfarer who has been deprived of opportunities; and that is one of the purposes in our medical missionary work, one of the features that goes with our sanitarium movement wherever we find it.

I spent the summer in Europe visiting our various institutions there. I found the same thing in every one of the countries of Europe where we have established our school work.

I am glad to be here today and to see this splendid gathering to set aside this institution for the purpose for which it is intended; and I trust the time is not far distant when it may reach out, if there are ~~xxxx~~ spots in this city that are equally needy. I presume they may be few, but undoubtedly there are dark sides here, homes where there are aching hearts who know not any remedy. May God help that this institution may cheer such, and bring the oil of gladness into other homes, is certainly my sincere desire.

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DEDICATORY ADDRESS

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Dr. J. H. Kellogg.

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It is a very great pleasure to meet you here today. I am certainly very much surprised to see such a large number of persons gathered in this place. It has been very much transformed since the last time I was here, and I was quite surprised to find so beautiful and nicely equipped <sup>an</sup> institution. The transformation which has taken place since I last saw it is very beautiful indeed.

I am here this afternoon not to represent the Battle Creek Sanitarium, but to represent the movement which gave birth to this institution, and for which this institution, to which this institution is responsible. I was thinking as I have been sitting here, of where this work really started, and I confess that I can not find the origin of it in Battle Creek, although it is called the Battle Creek idea. It is an idea that did not originate in Battle Creek. It is sometimes called by the public, the Battle Creek Idea because in Battle Creek there is, perhaps, at the present time, the largest representation and the most complete representation of the principles which are represented in these institutions, which have sprung out in part from the original institution at Battle Creek; but the idea did not originate there.

You might go back sixty years, and you would find a beginning of something very like this Battle Creek idea, in New England, in Connecticut; a small body of men gathered



themselves together at a little place which they called the Brook Farm, and this movement is known in History as the Brook Farm Experiment. An eminent New England clergyman, the Rev. George Ripley, was the founder of the movement, and there were associated with him such men as Bronson Alcott, Emerson, Thoreau, Charles A. Dana, the eminent editor of the American Cyclopaedia, afterwards editor and founder of the New York SUN, Margaret Fuller, the educational reformer. One of the very first in that movement in this country was Hawthorne, the author, father of the present author by that name, and many others,--something like 140 persons, the most promising young men and women of New England, gathered there, gathered together at this farm. Large buildings were erected there. For a number of years this little colony continued to grow. The central thought of this work was to get back to nature, to return to nature. These men looked back, as the ancient Greeks and Romans did, to a better time at an earlier day when men lived nearer to nature, and nearer to God than in the times which now exist. And their effort was for a return to that natural way. This was not a new movement altogether; this was not a new idea, for all along the centuries there have been men who have recognized the fact that the world had wandered away from the original model, the original idea. You may go back three or four centuries before Christ, and you will find a wonderful man, Pythagoras, the greatest of all the Grecian philosophers, a man who lived before Plato and Socrates, and to whom those two men owed much of their wisdom which they sent down to the modern world. Pythagoras believed the world had gotten into a wrong way, and he established a little village called



Crotona, some distance out from any of the great centers of civilization--established a little colony at which he undertook to do essentially what the Brook Farm Experiment undertook to do, to induce men to live in a natural way, to conform all of their habits in life, in eating, and drinking, and dressing, in education, in work, in all their life relations, to conform to natural law. Somehow our civilization has led us away from the natural order of life. We do not appreciate that very much until we find ourselves ill. Now and then the business man finds himself worn out, broken down, and he breaks loose and leaves his business behind, leaves his home and friends, goes off somewhere in the country, lives in a tent out of doors, tramps among the weeds and bushes and the trees, and associates, not always agreeably, with the deer, and the squirrels, and the birds, unfortunately for them sometimes, but fortunate for him that even nature has led him out into the country and open air, fresh air, and sunshine, and the out-of-doors, and he gets into the lap of nature again, and he goes back in a week, or a few weeks, and says, "I feel like a new man." His dull eyes are brighter, his pale cheek has reddened, and he has an appetite where before he had none. He is able to sleep at night; his head is clear. Some of the cobwebs have gotten out of his brain. He is another man. Nature has certainly helped him. The fact that he has shot a few deer, or killed a few birds, or exterminated a few rabbits, or squirrels does not help him any, it has not helped him any, but it has hurt them, and has not done him any good; but it is the walking hunting for the deer, it is following his dogs in their wild chase after the wild creatures that are



fleeing from them, the breathing of the pure air, and the exercise, and the living near to nature--that is what helped him.

Now the idea of the Brook Farm was to get nearer to nature and to stay there in a natural way, in a normal way, and to find a course of life which could be followed and pursued. This experiment might have succeeded, but unfortunately, by a lack of business sagacity perhaps, directly because of neglect to insure their buildings, a great disastrous fire came and burned up their largest buildings, and they were left without means to rebuild, and so the experiment ended. But the idea did not die. The experiment ended, but the idea went on. We find more said about this experiment in recent years than formerly. Recently several books have been written on it. For half a century it was forgotten. Several very lengthy and able magazine articles have been written about the Brook Farm Experiment. I need not perhaps tell you more about it. I am not living in the natural way myself entirely. I am suffering today the penalty of living as I have been doing.

About forty years ago another group of men who really knew nothing about the men who gathered at the Brook Farm, associated themselves together in Battle Creek, and the community began to set before the world ~~such~~ an example of right living, of wholesome living, to plant a standard which would have written upon it, "Return to Nature," and would have for its principles the whole law of God, the great Decalogue for the rule of conduct for the physical man as well as for the moral man. This work began there in a little two-story building just about one-third as large as this,--a small two-story structure, with the very plainest of appointments; there



were no two rooms in the whole building as large as one of these; there was no place where a company one-third as large as this could gather together. In this little place work began. This was called the Health Reform Institute. The idea was to bring men there to reform them, to induce people to come to be reformed, to have their bodies reformed, their minds reformed, and their habits reformed, and their hearts reformed, so far as they needed reforming; and people began to come from different parts, came from very scattered localities from different states, away from the far South, and the far East, and the far West, and within a few years there were gathered together there some scores of people who were gathered from a very wide territory. I had the good fortune to be at the very beginning as a very small boy sitting under a tree. On the dedication day there were gathered together nearly one hundred people, and we thought, "What a wonderful gathering--these one hundred people who are interested in these things!" I remember very well sitting under a tree, a small tree no larger than what I could reach around with my two hands--a little oak grub had grown up there, second growth oak tree. I was looking at that tree the other day, and I could scarcely reach around it. I do not know that I could quite reach around it. It is now a large tree, grown up with wide spreading top, and reaching out its roots far into the ground; and I thought to myself, "How this tree has grown!", and as I look about I thought about the work of this institution in different parts of the world, and this movement, and I could see that the movement had grown still more than the tree.

I have now been connected with the work thirty years;



it was thirty years ago last spring that I became associated with this work, and I have seen it developed from that small two-story building to the proportions it has now reached. We can not call it a little work now for it certainly covers over a very wide territory. I have seen some very agreeable changes taking place during those thirty years. I remember very well some thirty-seven or thirty-eight years ago when our institution was first started, and we served on our tables oatmeal, graham bread, and the people thought that was such a strange thing. They said, "Why, up there they are living on a horse diet; they eat oatmeal; they are like horses." They thought it very strange, and as I was a boy going to school, I was often pointed at,--"There goes a boy that lives on horse food" because I ate oatmeal. Some of you perhaps remember the story of Ben Johnson, the lexicographer, Johnson who wrote in his first dictionary a definition of oatmeal: "food for horses in England, and for men in Scotland." A Scotchman took him up about it and asked him what he meant by such a reflection as that on the scotchmen. "Isn't it true?" said Johnson. "O yes, it is true." Then a bright idea occurred to him, and he said, "Mr. Johnson, it is true; where are there such fine horses as in England, and where will you find such fine men as in Scotland?" This idea had not yet gotten into the world, and that there was something thrown away when the wheat was ground and the bran was all removed, all the outer portion was removed; we did not have our patent milling process then as we do in the more modern times; and the wheat flour then contained ~~xxx~~ nothing at all but just the starch and a very little gluten, the inner portion of the grain



which is of the least value. The farmer would go down to the mill and take his bag of wheat; have it carefully ground, and then take away this starch in one bag and the shorts, the bran in another bag, and he would carry the two bags back, and he would feed the shorts, the bran, the real nutritive portion of the grain that had the rich gluten in it, strong for making bones, muscles, and nerves--he would feed that to his pigs, and his horses, and his cows; and he had fat pigs, and he had strong horses and oxen, and beautiful cows. Then he would feed that superfine white flour that was a starvation diet, to his wife, his daughters, and his boys, and it is no wonder they were pale, puny, and starving. Well, the teeth of those boys are disappearing very largely because our fathers did not eat enough mineral products that they threw away. We have got splendid fine hogs in this country, and better horses than we have men. Our human race has been degenerating the last fifty years because of this neglect, while our horses have been improving, the pigs have been improving, and the cows have been improving, but men and women have been degenerating. This thing was recognized, and the men at Battle Creek recognized something was needed, that men were needed to preach the gospel of health, that there should be reforms started, not only temperance reforms, but anti-tobacco movements, and it was known that there should be reforms which would recognize the evils of tea and coffee, the evils of mustard, pepper, pepper-sauce, and the various evils in diet and habits of dress. You all remember that in those days when you ventured out on the streets, the ladies wore dresses that were in no ways wholesome and the ladies were made objects of ridicule, if they did not wear the wide spreading hoops which were common in those days.



I remember particularly that I had to get off the sidewalk whenever a lady came along. When a lady had to pass another lady on the sidewalk she had to ~~pr~~ compress herself into smaller space, because the walks were not wide enough for two people to pass. The first women in Battle Creek who started dress reform, started in that line, the women who first wore the health reform costume, had to run the gauntlet of persecution wherever they went because they did not wear hoops. Today a woman would look just as ridiculous wearing hoops and wide spreading skirts as the women who wore clothes in those days very much as they are worn now. Of course the first efforts at reform were more or less crude, and have been modified from time to time at Battle Creek, for it has always been a center of dress reform as well as of diet reform.

There are other things which were recognized as necessary by these pioneers. You have heard something today with reference to how the husband of our great benefactress here came to enter the practice of medicine. When he had chills and fever he was bled, he was treated with large doses. These things were very common forty years ago. The science of medicine had not advanced to the progressive stage it has reached now. Men in those days depended upon artificial methods. Dr. Bigelow of Boston, and Dr. Oliver Wendell Holmes called this the artificial method. Dr. Wendell Holmes wrote a poem about it entitled "Rip van Winkle M. D." He prophesied away back fifty years ago, he prophesied that a generation hence the practice of medicine would be revolutionized; that men instead of adopting such an artificial way of giving large doses of medicine to make people very sick even if they were



well, instead of bleeding and blistering and other things which were in vogue in those days there would be a rational method in dealing with the sick, a more rational method. I think Dr. Oliver Wendell Holmes even went so far as to say that it would be better for mankind if all the drugs in the drug shops were cast into the sea, but it would be bad for the fishes. I would hardly dare to say this if the statement had not been made by such an illustrious doctor. Dr. Oliver Wendell Holmes is recognized as a man of position; he was professor of anatomy in the great Harvard University at Cambridge, Mass. I had the pleasure of meeting at Battle Creek the other day one of his most intimate friends and colleagues, Prof. H. P. Bowditch, of Harvard University, who spent a day with us at Battle Creek with his friend, Mr. Horace Fletcher, the new apostle of chewing. Mr. Fletcher invented chewing, by the way, and he is teaching everybody to chew. I was glad to notice in a recent paper that King Edward has taken up chewing, and chews his food four or five times as long as he used to, and has got great benefit from it, and does not have to eat more than half as much as he used to. This is one of the latest features of our reform, and has been even introduced into New England. In England the Lords and ladies and aristocrats are getting together all the time in little circles and vying with one another the length of time they can chew each morsel of food. It is certainly a very useful sort of fad. It is a fad that is not likely to result in anything evil, as do most of the fads of the day.

Dr. Bowditch recognized in our work at Battle Creek the physiologic method of treating disease. Instead of recog-



nizing disease as something that has an entity to be driven out of the body, that disease is recognized as simply a variation of the condition of health, simply a modification of health. We often speak of disease as poor health. I was talking with a lady some time ago from Indiana, from somewhere near a certain township in Indiana who was telling me about her very serious ailments, and I said, "You have suffered a great deal." "Yes," she says, "I have enjoyed poor health for many years, and I want to get rid of it as quickly as I can." I suppose she meant she wanted to get so far away from it that she could shut the door behind her. It is a common expression in her neighborhood. The idea was to recognize the ill health, as we call it, or poor health, as simply a modification of our ordinary health. It is not that one gets something into the body that is new and has got to be driven out. When a horse is out of health, it seems very natural that he should be fed better, that he should be exercised more, that he should be groomed better. It is a curious thing that we found out how to treat our sick horses long before we found out how to treat our sick men. When a man's horse got to be run down, the common thing was to turn him out to pasture. I met a man sometime ago who told me he had got a lazy liver. I examined his liver and found it was not lazy at all, but only overworked. I told him his liver was like a streetcar horse, needed simply to be turned out to pasture on Sanitarium diet a little while. He recognized the suggestion, stopped his meat eating that was irritating his liver and loading it up with uric acid, and he felt better very shortly.

The fact is nearly all of our diseases as recognized



by the Battle Creek idea, the physiologic idea, nearly all the diseases are the natural result of our own wrong doing and wrong seed sowing, and a great share of the seed is sown right at the dinner table. I do not like to go quite so far as an old doctor I used to know who declared that most people dug their graves with their teeth; but I do believe a large proportion of these five hundred thousand people who die every year, as Dr. Paulson told you, who ought not to die, that they are dying by their own hands. An eminent french physician said not very long ago, "Man does not die; he kills himself." So it is, my friends; the majority of men and women are destroying their lives by wrong habits of eating, wrong habits of dress, wrong relations to their conditions of life. Now the idea of our Sanitarium movement is to teach people how to live righteously; how to obey the great decalogue; how to eat right, dress right, sleep right, and conduct themselves properly in all the relations of life, and hence, if they get sick, to know how to utilize the forces of nature,--the air, the sunlight, the water, and those good hygienic agencies,--how to utilize them so as to make them powers for good in restoring the body to health.

One of the first things I found it my duty to do when I became connected with the Battle Creek Sanitarium, was to establish a training school. We have with us now at the Sanitarium a fine young woman ~~who~~ about twenty-five years of age, I guess, whose mother came to the Sanitarium as a young woman just about her age, the very first pupil in our first training class, and the girl looks so much like her mother it always seems as though we still have that woman with us. Her



mother is nursing, doing most efficient work down in the State of New York, near by the famous Lake Chautauqua. During this year we have been carrying on ~~xxxx~~ this training school we have been training men and women who are willing to dedicate their lives to ~~the~~ humanitarian work, to go out into the world and carry these principles of righteous living, of physiologic treatment of the sick; and we organized about ten years ago, after carrying on our training school for missionary nurses--for all must be missionaries to be admitted to our school--we organized, or rather we instigated, a company of men connected with the Sanitarium organized a medical school ~~to~~ for the education of missionaries, of missionary physicians, not simply Sanitarium physicians, but a medical school in which all the different branches of medical science should be taught. We have such a school in Chicago, and we now have about one hundred students in attendance; and these young men and women on entering this school dedicate their lives to these principles and to this work with the expectation of going out to the ends of the earth no matter where they may be called, to go out as preachers of righteousness, physical righteousness as well as moral righteousness, and they expect to go out and establish institutions like this. My colleague, Dr. Edwards, who is here, was one of the first graduates of this school, a graduate of the first class of this school, and we have sent out now more than one hundred from this school, going out to different parts of the earth. I have in my pocket a letter just received from one of our graduates who has just recently gone to Edinburgh, and it is very gratifying to us to find that our college was recognized even in the great medical



school of Edinburgh, he was admitted there to do post graduate work, and to receive advanced degrees that can not be obtained in this country; and we have also another colleague in Dublin, who is there to do the same thing. This is necessary in order that they may practice in English countries, and we have our doctors, at the present time, and nurses in almost all the civilized countries of the globe. I was looking through a letter just today from Sumatra, where we have some of our missionaries--one of our ~~missionaries~~ trained nurses and others associated with her engaged in splendid missionary work in the capital of Sumatra. We have some in the Phillipines, in Porto Rico, and in Mexico, old Mexico we have a nice little sanitarium there. We have sanitariums, large and small, in Australia in several different places, I think in half a dozen different places in Australia; in New Zealand, even in the different islands of the sea, at Samoa, and in the Hawaiian Islands, we have there a little sanitarium. In Japan and in China we have also--hardly yet in China, but we have four missionaries on the way, on the ocean this present moment on the way to China to plant our standards; and I was also reading this morning, and answering as I came down on the cars, dictating a letter to the superintendent of our Sanitarium in Calcutta. We have a branch of our Calcutta institution away up in the Himalayas. One of our graduates went last year to Cairo, Egypt, and we have a little sanitarium also in Jerusalem. We have others of our colleagues, other graduates of our school right up upon the very top of Mount Zion, close by the Damascus Gate, you will find a Battle Creek Sanitarium branch, where these principles, and where nurses trained at Battle



Creek are there carrying on their work. In Germany near Berlin, in Switzerland at Basle, in England within a few miles from Westminster, we have a nice little sanitarium at Caterham. Dr. Paulson was over there last year to give the dedicatory address at the opening of this institution, and I received a day or two ago the first semi-annual report, which shows the institution has progressed from the very first day. It is filled with patients, and other places have already started in England, branches from this one. Away up in Bergen, the very north-west corner of Norway, some of our trained nurses have established a little sanitarium, and are carrying on a splendid work. In the extreme north-western tip of Denmark, right out on the very end, just at Land's End on that little neck of land stands a splendid little building, possibly a little larger than this building,--a splendid little sanitarium nicely equipped, employing just the same methods you all have here, the same dietary, the same trained nurses, trained at Battle Creek, and physicians who have passed through the same course of training; at Copenhagen you will find the same. If you enter King Edward's palace at Windsor you will find a little corner where he has fitted up a little Battle Creek Sanitarium on a small scale with electric light baths and our various paraphernalia which the King has found the best thing for his royal gout; for pretty nearly every royal person has the gout, you know. He was over in Germany a couple of years ago, and his doctor called him over to a little institution there where our methods are employed, and he sent him over there for treatment. He took some baths for his gout, and he carried a little Battle Creek Sanitarium branch home with him. At



Buckingham Palace he has another sanitarium corner. He has the gout to fight just as hard in Buckingham as at Windsor. King Ferdinand of Sweden has done the same thing, and Emperor William. When I was in Germany last year, I found the Emperor had fitted up a little corner in his palace. I see by the paper that the poor emperor has smoked cigarettes so long that he has got cancer in his throat as his father had, and as our great General Grant had, because they did not know of these principles.

My friends, it is an awful thing when you come to think of it, of the whole civilized world going down each year, going down a little lower. We sometimes deceive ourselves, make ourselves think we are coming up, but while we are learning a great deal about electricity, about steam, and the forces of the world, men seem to have been overlooking themselves, seem to have been studying everything else but themselves; and while we have developed marvelous methods of doing business, some good, some bad, we have been neglecting the main thing, the real thing, the development of our physical powers. You see a few men taking up athletics, making a fad of it, and a few years ago I really thought a regeneration was in sight, <sup>when</sup> ~~that~~ the whole world ~~would~~ took up bicycle riding. I thought the bicycle was going to do what any number of doctors and preachers could not do, but it proved to be only a fad, and disappeared in a few years, and now it is card playing again. It is not the bicycle, but it is some sort of indoor dissipation which is in itself harmful because of the sedentary tendency, to say nothing about the moral tendencies, which it may have. But the world is not getting better; it is getting worse; it is getting worse physically; and I



think there are some signs of moral decadence, too, when we recognize the number of crimes committed. Think of it--ten thousand murders in the United States alone! There are more murders in the United States per capita than in heathen India, so that actually a man's life is safer today in heathen India than it is in civilized America, and only three or four hundred ~~men~~ brought to justice out of the perpetrators of these ten thousand murders in the United states--only three or four hundred brought to justice. So a great majority are unknown. This is not certainly a pleasant picture to look at. It is simply an evidence of the degeneration which is going on. At Kankakee a little while ago, the superintendent of the asylum said to me, "Doctor, it is astonishing, it is astonishing what a large number of cases come here suffering from one single form of mental disease, paresis. Why, twenty-five or thirty years ago it was a rare disease, we hardly ever saw it; but within the last ten years it has been increasing so fast that now it is coming to be almost half of the cases of insanity come here suffering from that one disease. There are no less of the other kinds of insanity, no less of mania, or other forms of insanity. There are just as many, in fact more, for insanity has increased three hundred percent in the last fifty years. There are three times as many lunatics in a town of a million inhabitants as there were in a town of the same size fifty years ago. Insanity has increased three hundred percent. At the present time idiots, imbeciles, and lunatics--there are thirty-four hundred in every million. Just think of it--ten lunatics out of every sixteen hundred people! Just think of Chicago with its two million people, and seven thousand idiots, lunatics and imbeciles in Chicago



alone, ---just in that one city! Enough to make a whole town. Just think what it will be if it keeps on increasing at that rate! In fifty years more it would be ten thousand to every million, one in every hundred in fifty years more. ~~Thirty--na, twenty-seven in every~~ In another fifty years, three in every hundred; fifty years more, nine in every hundred; next fifty years, twenty-seven in every hundred; another fifty years, and it would be eighty-one in every one hundred of the population, and in fifty years more it would be two hundred and forty three in one hundred. We could not get so far as that, and you see we would have to stop somewhere. I figured it out the other day, in two hundred and fifty years from now --I applied the law of analytic geometry to it, and I think I found out it would take about two hundred and sixty-five years before we would all be lunatics or idiots at the present rate we are going. You smile. It is certainly not a beautiful picture to look at; it is not a delightful thing to think of,--the whole world in a state of pandemonium, all the people idiots or lunatics. Of course idiots would not be so dangerous as the lunatics; it would be more comfortable to live with the idiots than with the lunatics, and perhaps safer, but probably it would not make very much difference to us, because we would all be lunatics ourselves if the world goes on to that point. We never can get to that point. We are going on so fast we begin to recognize something is the matter. Such terrible crimes as are being committed up here in Chicago--these men that have recently been arrested in connection with the street car barn robberies just the other day--by the way, I met one of my colleagues in Chicago just last night, and he



told me he had just been over laboring with those men to see if he could do anything for them,--had been over there talking the gospel to them. He is one of our doctors, and I was almost surprised he had gone, but I was not surprised on second thought, for this young man, who is now a missionary, and a splendid missionary, too, I found in Chicago ten years ago on the road to the same place. Those men are lunatics there, moral imbeciles, lunatics, and they are increasing,--not in the ordinary sense, but moral lunatics. There is an increasing number of such men. This young man might have been one. I might say just one word about him, as it illustrates what Dr. Paulson was talking about a little while ago with reference to our medical missionary work connected with the work of the institutions, and you will see how it all works in together.

I was down in Chicago one Sunday a few years ago before Dr. Paulson went there. The doctors were very scarce when we began; we had not got our medical school started, and we had not turned out our first graduates. Dr. Paulson was not a graduate of our school. He had not yet finished his medical work when we began. I had pretty much everything to do. Our work never would have grown very fast if it had not been for the fact that we had some one to go there and stay with it as Dr. Paulson did. One day about nine years ago, I went down to Chicago one Sunday, and they brought me an Irish boy who was a pretty tough looking customer, a drunkard and a thief, and an all around bad boy, just as bad a boy as you will find in any city, and I said to him, "Well, my son, where did you come from?" "Well," he said, "I come from all over, I came from everywhere." He had been living the life of a tramp, going everywhere. "Well, how did you come here?" "I was going



by the mission here one night and I heard some singing, and I thought I would like to go in, and so I went in." He came in, got warmed up, and he found something there he never found before in his life. The people were kind to him, asked him to take a bath, and he made up his mind it was a pretty good place, but he didn't quite like to ask them for a chance to stay at night. So he went away, but the next day he came back again, and he kept coming back, and he seemed so much interested that we just laid hold of him when he came in the next Sunday, and when I went down on Sunday, he was there. We cleared him up and found work for him. One day a few months later--spring had come, and I got a telephone when I was down town in the south part of the City that John had run away. Well, I said, where has he gone? "He got aboard the street car." I watched the street cars, and they came along, and I found John aboard, and I laid hold of him, I took him in and said, "John, where are you going?" He said, "I am going; I think it is time for me to move on." I found he had got the tramp fever. I labored with that boy, and I hung onto him until half past twelve o'clock at night; then I got him down on his knees and I prayed with him, and he finally came to terms and surrendered. I saw Chicago was a dangerous place for him, so I took him to Battle Creek and set him to work on the farm. He did not like that and I found another place for him. I sent him to school. Well, I wont tell you the whole story, but I will just tell you the end of it. When I got off the cars in Chicago yesterday afternoon, a fine looking young man came along with Dr. Paulson--a tall, fine looking young man stepped up to the cars, shook hands with me, and it was this



young man, that very boy that I have been telling you about, grown up now, tall, splendid looking fellow, and he is a teacher in our Medical Missionary College, and not only in the Medical Missionary College, but he is a professor in one of the largest medical colleges in Chicago, besides our own school; he is in both schools; the students of that school can not graduate without this young man examines them, without they have his instruction; and all the students of that school have to pass through his hands for instruction in certain specialties; and the young man said to me, "Doctor, I want you to come home with me tonight." I had operations to do and a good deal of work to do, but he kept right after me, and I found some one pulling me every little while, and he says, "I want you to come around." He has charge of one of our dispensaries, and he said, "I want you to come over and see the dispensary." I hadn't very much time for I was going down to the Life Boat Mission to say a few words, and I hadn't much time, but he insisted upon it, so I went on with him. I got over there and I noticed he did not stop very long, but hurried me through to the stairway and said, "I want you to come up stairs with me a minute." As he knocked at the door and the door opened, I heard him say, "Hello, sweetheart, I am coming;" and I went on in with him, and I found an accomplished woman, a fine woman, a beautiful woman, a cultivated woman who has a classical education, and she stepped out with a beautiful little baby in her arms, and says, "Doctor, I want to introduce you to my boy."

Well the young man and I went on down to the mission last night, and as we turned the corner and came up to the



Mission, he pointed out a corner across the road and he said, "Doctor, I want to say to you, just ten years ago, the night after I made my start in the Mission, I slept under a wagon just around that corner.

I just mention this story as an illustration of the fact that this sanitarium work strikes the whole gamut of society. It is intended to reach every class of men from the tramp, from the runaway boy on his way down hill to perdition to become a criminal, to the millionaire. I might tell you that we have in Chicago, and we have in other places, nurses who are standing at the bedsides of the wealthiest people, the most honorable people; and we have at Battle Creek, I could introduce you to senators, governors, lawyers, clergymen, and doctors. If you go over across the water you will find the Battle Creek idea in the palaces of kings and royalty. This work has gradually extended until it has encircled the earth, and I feel very grateful to see that through the munificence of your citizens here, especially through the kindness and generosity of Mrs. Stewart, who has been the noble patron of this work, that this institution is now established here in your midst, and I am here not to congratulate myself or my colleagues for anything we have done, but to congratulate you and to thank you and all the representative men who have gone out, and the women who have gone out over the earth to establish these standards and these principles in various parts of the world, in heathen lands as well as in civilized countries, perhaps twelve hundred strong at the present time, of doctors and nurses--in their name I thank you for the cordial support that has been given this work here in this town; and I feel that our Board and my colleagues everywhere are also indebted



to Dr. Froom, and to Dr. and Mrs. Dr. Edwards who are here this afternoon, for the earnest efforts they have made in establishing this work. This institution, some of you may not know, has gone through some vicissitudes, had some trials and tribulations in getting started; but that is true of every one of our institutions. The truth has to work its way in through the clouds of error. A little blade of grass has to struggle up through the earth to get into the light; so every little institution of ours that we have seen started, has always had to struggle through difficulties and trials at first. I am very glad my colleagues have had the courage to struggle on amid apparent defeat and discomfiture, to struggle on; and I especially feel grateful to Mrs. Stewart, and we all feel extremely grateful to this good woman for the courtesy which has been shown to this work, and the love and regard for these principles; it is not me or my colleagues that she has been standing by, but it is the movement ~~xxxxxx~~ ~~is~~ ~~the~~ that has occurred in this community and every other community, that has inspired Mrs. Stewart to give a large part of her property, of what she is worth, to this benevolent and philanthropic enterprise, and we feel very grateful indeed for it. I feel grateful also to the citizens of Moline for their cordial sympathy, and to those who are gathered here today, for your presence.

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~~GOOD~~ HEALTH FOR 1904.

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The managers have prepared for the readers of GOOD HEALTH for 1904 a feast of good things quite surpassing the best which has heretofore been offered during the long lifetime of this journal. For nearly forty years this magazine has been standing for principles of hygienic reform. Once unpopular, many of these principles have now come to be so popular that in some instances they might almost be said to be fads.

Mighty strides have been made within the last few years in the development of great principles of correct physical living. The natural life, the natural order in diet, dress, and all that pertains to daily habits is recognized as the ideal standard.

GOOD HEALTH represents this phase of modern progress as does no other journal. During the year 1904 this journal will deal with all the various phases of the great health movement which is today receiving more attention from intelligent men and women who are alive to the needs of the world than any other phase of human progress.

In addition to the discussion of general topics, each number during the year will deal with some in an interesting comprehensive way with some special and important question. The following program dealing with the leading features of the health culture idea will be faithfully carried out.

A glance at the following outline which will be faithfully carried out will give something of an idea of the thoroughgoing way in which the health culture idea will be dealt with in this journal during the coming year.

GOOD HEALTH FOR JANUARY: The simple life, as illustrated in the lives of eminent men, and the customs and history of great nations.

Interesting and instructive lessons will be drawn from the example of



Interesting and instructive lessons will be drawn from the example of such men as Pythagoras, Socrates, Seneca, John the Baptist, the Christ, Tolstoi, Priessnitz, Gladstone, William Cullen Bryant, the participants of the Brook Farm Experiment, and various ancient and modern nations, especially the Persians, the early Greeks, the Hindoos, North American Indians, Japanese peasants, the peasantry of Hungary and Ireland.

GOOD HEALTH FOR FEBRUARY: A temperance number, in which all the phases of the temperance question will be discussed. The influence of alcohol upon the brain and nerves and digestion. The hereditary effect of alcohol. Influence of tea and coffee. Tobacco habit. Opium, Cocain, and other drug habits.

MARCH: The hygiene of the home. Sanitary housekeeping. Sanitation of the kitchen, the cellar, the laundry, the sleeping room. Death's lurking places in the home.

GOOD HEALTH FOR APRIL: The mothers' number. The care of Children. Hints to young mothers. Health culture in the home. Home gymnastics. How to feed a baby.

GOOD HEALTH FOR MAY: The out-of-door life. Health and beauty. Nature's cosmetics. How to have a healthy skin. The morning bath. Wholesome sports. Out-of-door recreation. Nature study in the fields.

GOOD HEALTH FOR JUNE: The vegetarian idea: its history and development in modern times. Was the primitive man a vegetarian? Does vegetarianism pay? ~~Eng~~ Vegetarianism and longevity. Disease of animals. Relation of cancer to meat eating. Some famous vegetarians.

GOOD HEALTH FOR JULY: Vacation days. How to recreate rapidly. The most profitable health resorts. Phototherapy. Sunbathing.



**GOOD HEALTH FOR AUGUST: Dress reform. The modern dress reform movement. The beginning. The development of the modern hygienic dress. The best models. Evils of the conventional dress.**

**SEPTEMBER: Dietetics. Health foods. The Battle Creek system of diet. The raw food diet. Fruit and nut dietary. The Beefsteak food. The beef tea delusion. Horace Fletcher's experiments and discoveries. The wonderful discoveries of Pawlow. How much to eat in one day. The example of Cornaro. Fasting as a remedy for disease.**

**OCTOBER: School hygiene. What is best worth knowing? Evils of school life. Needed reforms. Care of the eyes. How a school teacher may preserve her health. School gymnastics. The swimming school. Out of door schools.**

**NOVEMBER: Hygiene for old people. How to grow old gracefully. Causes of old age. How to live one hundred years. Old age diseases and how to prevent them. How to grow hair on bald heads. A cure for wrinkles. How to preserve the sight. Exercises for old muscles.**

**DECEMBER--THE MID-WINTER NUMBER: Christmas and New Years' dinners. How to keep warm in cold weather. Cold weather hygiene. Out-of-door life in winter. Winter health resorts for feeble invalids. A winter sunbath indoors.**

**HOME REMEDIES. Each number will contain instruction with reference to the treatment of maladies incident to the particular season of the year.**

**QUESTION BOX. Each number will contain answers to scores of practical questions asked by correspondents. Every subscriber has the privilege of asking as many questions as he likes, to be answered through the journal by the editor.**

**EDITORIAL DEPARTMENT. Each number will contain several pages of editorial comments upon live health topics. The editor will be able**



to give more of his time to the conduct of the journal during the coming year than for several years back.

CONTRIBUTORS: Mrs. Kellogg, who has for more than twenty years contributed regularly to GOOD HEALTH will give a large part of her time to the journal during 1904, and will contribute numerous original articles on child culture, healthful home making, cookery, and other topics which are her specialties. Many other old and new contributors will aid in carrying out the above program so that subscribers may confidently expect the GOOD HEALTH for 1904 to be the very best volume of the journal which has ever been issued.