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Pan-Peptogen Experiments

10/29 '02

Exp.	test meal on B.D. Field	A	A'	H	Pep.	Cal. Amt.
	prior to following meal	.030		.020	9 mm	
1.	60 g Pan-peptogen, no water	.268	.232	.200	7.5 mm	69
2.	60 g Potato puree 200 cc water	.310	.300	.190	9.0	17
3.	60 g Potato puree) 200cc of 60 g Pan-peptogen) water	.168	.147	.128	20.0 mm	519
4.	60 g Potato puree) 60 g Pan-peptogen) No water	.366	.306	.168	17.0 mm	159
5.	60 g Potato puree) 30 g Pan-peptogen) No water	.284	.200	.120	14.0 mm	118

No fluid obtainable required Double Lav

Regular test meal .128
 .128 .092 .060 1/2 53

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SANITARIUM LECTURE, West Hall, Aug. 21, 1902.

Home-coming, Getting Well, etc.

J. H. Kellogg, M. D.

----- X -----

Good Evening, Ladies and Gentlemen : I must apologize for keeping you waiting so long, but I have been necessarily detained in the Surgical ward. I have been detained in the Operating-room about two hours longer than I expected to be. But I have, for many years been unable to do what was demanded of me, although I have been struggling day and night, and doing all I can to accomplish what was required of me, and I am continually feeling sad and sorry because I could not do a little more.

I am very happy to meet you again. I see some faces here that I have seen here before. Some of you have been with us almost every year. Some of you say, "I came here, not because I was sick, but because I loved to come." I assure you that we feel highly gratified that such is the case.

This is not a pleasure resort, still it is rather a healthful place, and there is an air of healthfulness here that is an inspiration to those who come here.

I have been away three months visiting the great establishments of Europe, and, without taking any credit to myself, I will say that there is no place on earth where the principles of health and of health-getting stand forth so clearly as at this place and in this Institution. This is not because either my colleagues or myself are such capable men, or such great geniuses. We are all of us very common folks. It is because of the principles for which this Institution stands--principles held by those who established this Institution thirty-six years ago, and which have been growing ever since, until they have come to be generally known and recognized. I

was gratified to find that our Institution was known in every large city where I have been.

When I arrived at Copenhagen, I visited our Institution at Skodsborg on the North Sea. The King and Queen and the Princess Waldemar, as I learned, had been there a short time before I arrived. They spent the afternoon there, the Queen remarking, "This is a wonderfully interesting place." The building was originally erected by the father of the present king for the benefit of the Princess Royal. The institution is now composed of two or three buildings, and it is a most beautiful place. It stands right on the shore of the North Sea, and right across the way is the Royal forest with magnificent old trees of various kinds, and two or three thousand deer running about in the woods. It is a most charming place, all laid out with walks and drives, and having a variety of picturesque scenery, with little valleys, old mills, storks' nests, and various other interesting things.

I found that the Queen of England knew a great deal more about the Sanitarium and its treatments than our friends have supposed. King Edward has an electric light placed in his palace. He uses this bath for the gout; he has the bath right in his palace, for he knows that he is likely to have the gout every day. King Christian, of Sweden, and the Emperor of Germany are subject to this trouble, and so they use our electric light baths. Thus the knowledge of this institution and its methods is spreading among the Royalty of different nations. This bath is known in Germany as the "Kelloggische" electric light bath.

When I arrived at Vienna, I visited the great medical establishment of Dr. Winternitz, and, as he took me into one of these electric light baths, I saw a head sticking out of the bath, and the doctor introduced me to the head,--it was that of the great German leader, Prince Hohenlohe, who said

the electric light bath did his gout a great deal of good . Gout is an aristocratic disease, and very common in royal families, and in England, it is considered the proper thing for a man to have the gout; and, if he does not have the gout, it is evidence that he does not have so much beefsteak and wine as he ought to have. Wine and beefsteak are the fathers of gout .

Well, my friends, I am glad to be home again . I have not found a place that I liked so well as this . Had it not been for reports which have been sent to me, I should have been surprised to find 360 patients taking treatment in an institution, the main buildings of which have been burned to the ground . Although our accommodations at present ^{are not} the best, I suppose many of you came here hardly expecting to get as good accommodations as you find . I am amazed at the contentment that I find here. There is a great number of intelligent and cultivated people who are at present taking treatment here, and we are subject to the rude accommodations that we are compelled to furnish, in lieu of anything better at present , and I suppose you are all waiting to see ~~this~~ the completion of this new building across the road so that you can have some treatment in it before you go home . Progress in its erection has been rather slow thus far, for the rains have been falling day after day. I understand that it has rained nearly every day, during the month of June . The builders assure us , however, that their work will now progress at the rate of a story a week, after next week, until the roof is on. We have contracts that the plumbing will be completed by the 15th of October, or before, and we expect the bath-rooms at least, will ~~soon~~ be ready soon after that time.

I want to thank you for your patience and contentment, and for the earnestness manifested on the part of every one here in the work of getting well. This Institution has never been famous as a resort for pleasure-seekers. Some time ago, a couple of ladies came here, and after remaining here a couple of weeks, one of them said she must go home. On being asked the reason of her leaving, she said, "This is too ~~poor~~ a place for me. I want to be where something is going on. You don't have any balls or amusements here. I am fond of billiards and other games." I was very happy to tell this young lady, that this place was not made for pleasure-seekers, but for people who were downright sick,--who ~~were~~ are so sick that they are willing to do almost anything to get well, and who are anxious to get well.

I have discovered that there are two kinds of sick people in the world,--one class are not very anxious to get well; they are just sick enough to be comfortable, and have a pretty good time; just sick enough to be excused from all the labor and sorrow and trouble and cares and burdens of the world, and it is rather appalling to think of getting well and doing things again, so they think it is best to remain just comfortably sick. Some people enjoy being sick. I remember a gentleman who once came into my office and sat down and asked me to examine him and tell him what I thought of his case. I felt of his pulse and told him it was "pretty fair." Then I examined his stomach, and told him I thought that was in pretty good condition. "Well, what do you think of my spinal cord, my nerves and my brain." Upon examination, I told him I thought they were all "fair to middling," that they were all working fairly well, and that I didn't find anything serious in their condition. When I had finished, he said, "Now, doctor, what do you think about my case? Don't you think it is a bad case?" "Why no," I said, "I don't think you are incurable." "Do you think you can cure me?" he asked. "I think you can get well," I answered. "Doctor,

I am afraid you don't understand my case,--why, doctor," said he, "The last thing I did before I came here, was, to make an arrangement for starting a 'Home for Incurables,' and I proposed to come here, and have you examine me and pronounce upon my case as incurable, and then invite other incurables to the 'Home,' and go and live with them, but you ^{would} have spoiled all my plans if you should cure me, and I think you are mistaken." I said, "You come in to-morrow and I will see you again." The next day he came in and I examined him again. I thought it was best to take a different view of his case, for a few minutes, and so I looked at ~~him~~ his tongue and felt his pulse with a sad and solemn air, and shook my head very dubiously. Then I saw that he began to look pleasant, and when I got through, he said, "Well, doctor, what do you think of my case now?" "Well, ~~sir~~, I think --I think your case--well sir, I think yours is a hopeless case." You ought to have seen the bright smile that spread over the man's face and eyes,--they fairly danced with delight. "Doctor," said he, "I believe you understand my case." I am very glad you have given me such a very thorough examination." He was glad to find that his case was hopeless,--and it WAS hopeless; it was an utterly hopeless case, because the man didn't want to get well; that was the hopeless side of it. He could have got well if he had wanted to. He wanted to be considered the worst case that I ever saw, so he asked me if I didn't think his case was the worst case that I ever saw. I said that there was one case that I thought was worse than his. I then told him the story of a lady who was here once, a week or two, and she found that "everything was wrong about the institution,"--she did like either nurses, doctors or helpers; she didn't like the baths, nor anything else we had, and she wanted to make a change. She wasn't very sick, but I sent for her husband. He asked what we were doing for his wife. I told him we were doing all we could, but that everything had failed, and I didn't know what to do. Then he said, "What would

you recommend?" I told him I thought perhaps a change of climate would be beneficial,--at any rate I was anxious she should seek some other climate than ours. I wasn't very shrewd in my suggestion,--I could have thought a little further, but I was hurried with my work, and hadn't thought the question all through. "Doctor," said he, "what climate would you recommend?" That was a pretty serious question. If I recommended Florida or Colorado, it would be the same with her as when she was here. He didn't want to take her home (and I didn't blame him), and where should he take her. After some reflection a lucky idea struck me, and I looked him straight in the eyes and said, "My dear sir, I think there is no climate but Heaven that is exactly suited to your wife's case." He looked down at the floor and a moment, then raised his eyes which were filled with tears, reached out and took my hand, and said he, "Doctor, I believe you are right."

I have seen a great many folks of that sort,--people that are not very anxious to get well...I remember a certain invalid lady who was here at one time,--she had been an invalid for twenty years, and became more and more an invalid, until she required some one to carry her in their arms; and she had to be lifted into her chair. Pretty soon she began to get better, and she began to gain flesh, and she gained so rapidly that the young man who attended her, carrying her, and lifting her, came to me and said I would have to get somebody else ^{help him} to do that work, because it ^{almost} broke his back to do it, because the woman had become so fat that he couldn't do it any more without assistance. So I got another man, a German, a pretty good sized man for that purpose. This woman had gotten so fat that she weighed 180 to 200 pounds. And yet she had a very mournful look on her face and great black rings about her eyes, and she would say to me, "Oh, doctor! I am having such a terrible time,--I didn't sleep any all last night." I told her she was gaining in flesh (I had inquired about her tray).

She said, "It must be bloat, for I don't eat anything to speak of." But I found out that she had been disposing of double trays, supplementing them with more food. I noticed that she always had those great black circles about her eyes, and she did look very melancholy and sad, and seemed to have lost a great deal of sleep. One day, I met her in the hall, and just then a wicked idea struck me, and I asked her to step into the office. She did so and while looking at her tongue, I looked at her eyes, and said, "Isn't there something the matter with your eyes?" "Yes," she said. I then dropped a small quantity of eye-lotion into her eye, which made it smart. I then quickly applied the corner of a handkerchief to it, and gave the eye a little massage, rubbing it pretty hard. As she rose to go out, I noticed that the black circle around that eye had entirely disappeared, and, as she passed out of the room, I noticed that one eye looked melancholy, and the other, happy. Her sister afterwards told me that, some years ago, she had seen her very carefully painting those circles around her eyes by the aid of a fine brush and the contents of an ink-bottle. This young woman never got well,--she is not well today, because she cultivates sickness.

We don't want people who are afflicted with that kind of disease. We have no room for them. This Institution is for people who are serious in the work of getting well, and who have something to do in the world. But when people don't want to get well, we don't want them here--we don't care about curing such people anyhow, because they are a burden to society and to their friends, and they would be of no use if they were cured. But when a man is of use in the world,--a doctor, a clergyman, a business man a judge, or the mother of a family that she is rearing up to hold places of usefulness in the world, we feel like rolling up our sleeves and working night and day, and doing everything we can to help them get well, and go on with their lives of usefulness. That is what this Institution is for. That is why you see these doctors and nurses here. There are no salary inducements for doctors and nurses to stay here. Some time ago, a leading business man said

to me , "How do you manage to gather together such a good class of ^{people} ~~university~~ here. I have a large ^{hotel business} ~~institution~~ to manage, and have to employ about a hundred people, and some of them quarrel every day, and some of them swear as well as quarrel, and it is discreditable , and I have to discharge somebody every little while . I could run the biggest hotel business in the country if I could have such help as you do,--I could make a fortune every year if I could employ such people/as you have ." I said, "You can't hope to do that, as you are running a hotel, and we could not get such people if we were running a hotel. These people come here because they have a purpose in view and that is the reason why you find harmony here . After I have been away for two or three weeks, or months, when I come home, I always find everything going right, and going just as when I left it. Why is that ? It is because men and ~~the~~ women here are working for principles taught here, and which they believe in. The doctors here take their own medicine,--they only ask you to eat what they eat, ~~to~~ avoid beefsteak and to do just as they do. I don't recommend a patient to do a thing that I don't do, in the matter of diet. I have never asked a patient to restrict his diet any more than I do myself every day of my life. Our doctors and nurses believe in living in such a way as to get the most out of life. Many people believe in living in such a way as to get the most sensation out of their bodies. They use their tongue and palate simply as a means of obtaining pleasure. I was at one time on a rail-car taking my dinner and dictating letters. My dinner was composed of some apples, , zwieback and a handful of nuts. One can carry such dinners almost anywhere--one can carry his dinner in his vest-pocket, if he wants to; it is a handy sort of dinner . While I was nibbling at a crust and dictating, some one tapped me on the shoulder. I looked up and recognized the Professor of a leading medical

college whom I had known many years before. "Well, doctor," said he, "I am glad to catch you right at it -- I have for years been wanting to know what you eat--what have you got ~~remaining~~ here?--is this all you have to eat?" "Yes," I said, "this is all I have had to-day. I was busy this morning and I didn't have time to eat my breakfast, so that I am taking breakfast and dinner all at once ." "And you are perfectly satisfied with that ?" "Yes." "Well, I would not be satisfied with it." "This is sufficient," I said. "Here I have bread,--and bread is the staff of life. Then I have nuts, and that is beefsteak and butter all in one,--and more beefsteak than there is in three pounds of beefsteak, and ^{some of} the best kind of butter too. Then there are the apples, which answers for the pie and the dessert. So I have got the whole bill of fare ." "Well," said he, "I don't think you have so good a time as I do, at any rate . I have just been in the dining-room and got a good meal ." I said, "I suppose you have been tickling your palate. I don't believe in that, and yet I am having a pretty good time. This zwieback is very sweet." He broke off a little piece and began to chew it,--" and said he, "I can't see that it has any taste at all. " "Of course not," said I, "because you have been in the dining-room blistering your tongue with pepper , pepper-sauce, etc., and how could you expect to taste bread? " Said he, "How did you know I had been eating those things?" "By the looks of your nose." "Well," said he , " I like things that give--give my palate a twist." He hadn't stopped to think that the things that twisted his palate would keep on twisting all the way down--twisting his nerves, liver, lungs and stomach.

We are all here working for principles, and I believe you have confidence in those principles. You didn't come here to see me,--it makes no difference whether I am here or not . You came here because you believe in the system which has been brought out here ,and it is only necessary that the doctors and nurses here shall understand these principles and apply

them. It is the principles of the system that help in the cure. The real cure of disease is in the body itself,--it is the blood that heals, as a famous German physician says. You know the Bible says, "The blood is the life,--" the life is in the blood. So the important thing thing is, if you are sick, to have more blood and better blood. If a man has a boil on the back of his neck, it is not because his collar rubs it. All men wear collars, but all men don't have boils. Why is it that one man has a boil and another man does not have a boil? When a man has a boil, it is because his vital resistance is lowered; his ability to combat germs is lowered by disease so that the germs are too many for him. It is for the same reason that when two men engage in a fistic encounter, one man is worsted. When germs attacked ^{the} man, if his vitality had been stronger, he would have had more blood and better blood, and then he would not have been defeated in the battle,--he would not have had the boil.

Now what is true of a simple boil is true of dyspepsia, constipation, Bright's disease, nervous diseases, apoplexy, and all other diseases. The reason that a man fails, and becomes sick, is, because his vitality has been expended. How? In dinners,--in wrong eating, and wrong habits of life. Our daily habits are the cause of our sicknesses. If it were not for these bad habits, (barring accidents) we would all die of old age, living to be a hundred or two years old. It is because of the violation of the laws of nature that we fall victims to disease and premature death. If it were not for these violations of the laws of nature, we would all be strong, hardy and long-lived.

When I was in Ireland, a gentleman died at the age of ¹²⁵ ~~120~~. There are many in Ireland, aged 110, 115 and 120. This man who lived to the age of ~~120~~ 125 was engaged as postmaster when he was 120, and died when he was 125. Why did he live to that age? It was because of his simple diet and life. His diet consisted of brown bread, buttermilk and potatoes.

That is a pretty good diet. The buttermilk furnishes the nitrogen, the potatoes furnish the carbon and the starch, and bread furnishes a sort of sauce for the other articles. Every one can live on buttermilk and potatoes; that makes a whole diet, and the bread comes in simply as a little change. In Ireland, there are more people to the million who are a hundred ~~or~~ or more, than in any other country in the world, except Hungary, a small country of twenty millions. In Hungary there are 2500 centenarians at the present time. Hungary has more centenarians than Germany with its fifty millions, or Great Britain with its forty millions,--and why? Because of the simple habits of the Hungarians.

The fundamental idea of this Institution is to get back to nature--to lead men back to simple, natural life, and to get rid of the artificial habits of ordinary life. It seems strange that civilized nations are not entirely obliterated. The reason they are not, is because the human constitution is marvelously tough and vigorous. Tobacco is almost universally used in this country,--and especially so in Germany. In one car of a railway train, you will see the sign of "No Smoking," while smoking is allowed in all the other cars...You are almost sure to find a seat in smoking cars, unless you see for the "No Smoking" car. Why has not tobacco killed us off entirely? It is because the human constitution is so tough. Sam Jones was at one time giving a lecture in Kansas City; he was lecturing on "Tobacco," and pointing out its evil effects. ~~At the time~~ An old gentleman arose in the audience, and said, "Mr. Jones, I have rather liked your preaching, until to-night, but I don't take any stock in what you have been telling us about tobacco ~~at~~ this evening. You said it was a poison and destructive to health and life. Now I am 92 years old, and I have been smoking 82 years, every day, and I am still alive,--how do you account for that?" Said Mr. Jones, "It is only because you are uncommonly

tough, and if it hadn't been for your smoking, your friends would have had to kill you with an axe." In this manner, people draw wrong conclusions, and say, "Oh, I've been smoking forty years, and it hasn't hurt me." A lady once said to me, "I have been drinking tea and coffee all my life, and it has not hurt me any." And a man will say, "I have been eating pork and beefsteak all my life and it has not done me any harm. By-and-by there comes a little ^{soreness} ~~stiffness~~ in his joints, and they get stiffer and stiffer, and then there is pain in that joint. Then, another joint has pain in it, and so on, and he says, "Oh, what a terrible climate this is"! I think this is rheumatism. There is too much dampness in the air." So he charges ~~his~~ the results of his wrongdoing upon the climate. The health of a lady begins to give out; she begins to lose her memory; she gets nervous and cross; she scolds her husband and her children; getting into trouble with her neighbors because her nerves are all unstrung. She does not lay the cause of all her trouble to the teapot and its contents,--and yet there is where all the mischief ~~is~~ is brewed. She wonders if there isn't something the matter with the climate. So she goes to a doctor and gets a recommendation to go to some other climate, where she will perhaps find herself under circumstances which are not so favorable to tea-drinking, where she can't find the teapot on tap all day, as she did when at home, and so she gets a little better.

We don't charge our ills to the right cause,--we don't trace them back to the right thing. If we can't find anything else to charge our troubles to, we charge them to Providence. I remember a certain lady, who came to me for help, and I told her that I thought her stomach was the seat of her trouble. "Oh, doctor!" said she, "it is of no use to talk to me about my stomach,--it makes no difference what I eat. You know that Paul had a thorn in his flesh, and I think the Lord has given me my

stomach for my thorn." "Yes," said her mother, who was with her, "yes, doctor, Blossom's torn is her stomach, and I hope the Lord will give her grace to bear it." I felt like smiling, but didn't, and told them I thought the thorn might be removed. "Oh, no, doctor!" said Blossom, "the Lord has given it to me, and I must bear it." I saw there was no use in talking about that any more, but I was glad to learn the next day, that the young lady had had an awful chill, and wanted that removed. You see, she didn't want her diet disturbed; she was fond of certain unwholesome things and she was facing against any change in diet. She was stopping where they have a good deal of malaria,--where the busy and musical mosquito sings his second base, and she had gotten malaria and had a chill. She came into the office with her mother, and she was excited and shivering and shaking, and "wanted something done right away," she wanted a big dose of quinine or some other drug that would break up the chill. I sat down, felt of her pulse and looked very sorrowful and spoke to her in a very sympathizing manner, and rose to leave the office, when her mother said, "Aren't you going to make any prescription for Blossom?" And the young lady said, "Why doctor, Aren't you going to do something for me?--I feel awful bad." I said, "How can I? Providence has sent ~~me~~^{you} another thorn, and I wouldn't wish to fly in the face of Providence." She saw the point, but I gave her some treatment ^{for the chill} and she ~~chill~~ was relieved. But I never got a chance for a pull at the stomach thorn, and she went home. Some time afterwards I got a letter from her father who wrote that his daughter was starving to death,--that "she only had twelve eggs and twenty oranges yesterday."

Some people have no conception of what is necessary to getting well they have never expected to deny themselves, and they are going to eat and drink what they like; they want to be cured without any change in their

diet or habits. An eminent physician once said to me, "Doctor, the most foolish ~~thing~~ idea among people is, that they can go on violating the laws of nature, and then swallow a little medicine and antidote the effects of their sins,--thinking that a man can violate all the laws of nature, and get rid of the penalty by swallowing a little medicine." But the order of the world is not arranged in that way. The Bible says,--and nature and sound philosophy say that "Whatsoever a man soweth, that shall he reap." There is no escaping that inexorable law. We are taught, however, that if we are only shrewd enough, we can avoid the penalty of that law; that we can somehow escape it. But I want to say to you, my friends, there is no escape, except in obedience. When the Israelites came out of Egypt, God said to them, speaking by the mouth of his servant Moses, "Obey and live," all these statutes and precepts that I give you are for your good--obey them and live."

That principle, my friends, is one that has always been a law of this world,--"Obey and live." "Disobey, and die." It must be so. If you sow the seeds of death, you must ~~die~~ reap death; if you sow the seeds of life you will live; if you sow for health, you will reap health. What would you think of this state of things: A man sows seed, and it does not grow. He goes to the drug-store and gets some medicine to put on his corn to make it come up,--or, if it has come up and does not grow fast enough, he puts ~~some~~ medicine on the leaves or stalks to make it grow faster." That is just about as reasonable a thing to do as some of you have been doing. When your energy gets low, you go to the doctor for a tonic, and he gives you something to make you feel stronger when you are not stronger,--the actual sum-total of energy is no greater than it was before you took the tonic. The medicine simply helps you to get a little more strength out of yourself,--it don't put any strength into you. How much could a

bottle of medicine left. How much strength would the rubbing of a little medicine on a rope give? It would give no strength. It only influences the nerves, so that more nerve energy will be expended, just as the opening of the valve of a boiler lets out more steam, or, just as the turning of a faucet lets out more water. So a drug lets out more energy, and you say, "That is just what I want." No, you don't. When you can't do your work, what is the matter? Is nature at fault? No. But there is something wrong, and it should be made right. If you take medicine that lets out more energy than should go out, you are simply exhausting your capital, and you are going to collapse all the sooner. This tonic that you are taking is like a whip. A poor horse is tired,--you put a whip onto him, and for a few moments he prances round like a colt. But, is he rested? Put on the whip and he starts off with a jump, and for a short time pulls you along at a rapid rate. But does the whip make the horse stronger? No. This is a wrong principle that exists in the world, and this Institution stands for a right principle,--and that is, that in order to make a man strong he must be made strong by reconstruction,--by making better muscles, better blood and better nerves for the man, by increasing his store of energy,--not by getting more energy out of him; not by extracting the poor supply of energy that he has left, and leaving him a beggar, a pauper and a bankrupt, but by increasing his store of energy,--by increasing his bank-account, thus enabling him to draw larger checks ^{upon} ~~from~~ his bank --that is the true ~~way~~ principle,--and how are you going to do it?

The man whose store of energy is low must have more energy,--and where is he to get it ? From the blood. Where does the blood come from? The food, and the stomach. Where does the energy that is in the food come from? The sunshine. The sunshine stores up its energy in the food. We take food, and that is transformed into bones, muscles, nerves and tissues. It brings energy with it, and that energy comes from the sunlight. If you put food into the engine of a locomotive, it will burn, so there is energy there. There is about the same amount of energy manifested from the burning of food in the human body, as there is when burned in the locomotive--and a little more, as the human body is a little more economical than any engine.

The important thing to remember, then, is, that if we want to get more energy we must get more blood and better blood; and, if we want more, and better blood, we must have more and better food. Our aim, therefore, is to increase the digestive power, and to eat food that will give the digestive organs as little work to do as possible; we must give it food that is easy to digest, and a great deal of nourishing food. A pound of rice, for instance, requires an hour for digestion. How much energy is there in it ? Eighty-six per cent. How long does it take beefsteak to digest ? Three hours and a half. How much nourishment has it ? Twenty-eight percent. So it takes about ten times as much energy to digest beefsteak as to digest a quantity of rice containing the same amount of nourishment (?). The same principle applies to all other simple foods--granose, granola, and similar foods. So that by taking simple food, we can take a larger quantity. It is true of granose, granola, and other similar foods, that we can take a larger quantity with a less expenditure of energy, and thus rebuild the body. This is a process of reconstruction,--as a gentleman once told me after I had examined him and found that everything was wrong--said he "Doctor, I guess you will have to put in me a whole new set of works."

That is what he needed. . He had probably at some time taken his watch to a watchmaker's to be repaired, and the watchmaker found the case all right, but the works all wrong, and told the man that his watch needed a whole set of new works. So it is with the chronic invalid,--there must be a process of reconstruction in his case.

The process of cure is a process of reconstruction or making over. It is not a process of hiding symptoms. For instance, if a man feels weak, we can make him feel strong temporarily by the use of a drug; if he feels pain, we can stop the pain temporarily by a drug. If he ~~was~~^{is} rheumatic in the joints, we can give him salicylic acid, and the rheumatism will disappear temporarily; the salicylic acid has only dissolved the uric acid; it has not stopped the formation of it. To resort to such remedies is to imitate the foolish ostrich who hides his head in the sand thinking he will in that manner elude his pursuers. Drugs are nerve-foolers, making people feel well when they are not well.

Now the ~~natural~~ natural, physiological cure of the chronic invalid consists in the use of that which will make a new man. What evidence have we of that? Here is a poor dyspeptic who takes natural, physiological treatment, and in five or six weeks he looks like another man,--he is really a new man. Sometimes this work requires a longer time,--sometimes it takes even a year or two. Some patients travel towards health with a slow, creeping pace,--the first steps are very feeble, but after a while, it is like going down hill,--one can take longer strides. It is like climbing a steep and rugged hill,--it is hard work until you get to the top of the hill and begin to go down the other side, and it is easy work until you get down to the pleasant plains of health.

I have been visiting the leading ~~inst~~ medical institutions and hospitals of ~~Europe~~ and specialists of Europe, and have spent some thousands

of dollars/ during the three months that I have been away in obtaining new medical facts, and finding out all the new applications of water, electricity, etc. There are men who have given their whole lives to this work, and I have been watching them, and keeping up correspondence with them in order to get the ~~last~~ latest idea. The first thing I said, when I saw Professor Winternitz was to ask him, "What is the newest idea? What is the last word?" Thus we aim to keep our work in touch with that of those who are in the foremost line of progress. That is why I have been abroad,--so that when we get into our new building, we can enlarge our curriculum and our work.

There is one thing that I want to say in conclusion: There are 400 sanitariums in Germany alone, and the sanitarium idea there is far ahead of what it is here. It was at Graefenberg, some 62 years ago, started his work of water-treatment of the sick. I think I will tell you about that a week from to-night. I may have some stereopticon slides, and when I can get them made, I will tell you about Graefenberg. I find, in ~~Europe~~ Europe, this dominant idea, that we must get closer to nature, and that we must work out our own salvation, healthwise, by getting into natural ways. There are some chronic invalids who have been leading sedentary lives,--and if they have not been doing so in health, they do so when they are sick. The invalid thinks he must rest awhile. We once had a patient who had been resting eight years, and we tried to get him started so that he could walk. When he had been here about a month, I told him to get up. So he tried it, and he shook and trembled, and fell, when we tried to assist him onto his feet. I couldn't get him to hold his head erect. He said, "Oh, doctor! just let me rest another year, and then I will be strong enough to commence walking." "But you have been resting a long time now, and you must make a beginning." "Oh, I can't do it!" In six weeks I succeeded

in making him set up, but he couldn't stand up or walk any, --he said he must wait. Finally I wheeled him into the operating room one day, and then stepped out and closed the door, taking the wheel-chair and locking the door. At the end of about three hours I peeped in and saw that the man had edged along four or five rods from the operating-room door. When I came in, he said I had played a trick on him, and he was looking very cross. I said "Please excuse me, and I will never do it again,--but I am very glad to see you walking." "Doctor, I am going away. I won't be imposed upon in such a way as that." The next day, as I was going up the street, I saw this gentleman at the end of the balcony swinging his hat at me. He had made the discovery that he could walk, and he has kept on walking.

Many a chronic invalid gets into a state of lassitude, and feels the need of exercise, but thinks he cannot take exercise.. I find that in Germany, the idea has become dominant that the patient should get out of doors and take a walk for health. If you can't walk more than five rods, walk five rods; and the next day, walk seven rods, and so on. I have made up my mind to lay out this tract into walks, and to set up posts showing distances, and every patient will have his prescription to walk so far, and in this manner be expected to earn his dinner. The Bible says, "He that will not work, neither shall he eat," and nature says, "He that will not work shall not digest."

My friends, you don't know how much power there is in pure air. I hope every one of you will avail yourselves of the advantages of the out-door gymnasium.. It is only by co-operating with the powerful agencies of nature, cold water, hot water, and proper diet, combined with massage, electricity, and other simple and natural methods, that you can expect to be cured. I once saw eight or ten men trying to move a big stone, each one trying it separately, but without being able to stir it. At length they all took hold of the stone, and the thing was done.. So a

patient sometimes says, "I have walked, but it didn't do me any good. I have reformed my diet, and I am not cured," and so on. The patient thinks that because he has tried each of these things in succession without being cured, he cannot be helped. But my friends, don't be discouraged, if you have had such an experience as that. In our Institution we bring all these powerful agencies into operation at the same time, and in the same place. It is like raising a house with jack-screws,--you can't raise with one alone, but jack-screws must be put in many places under the building, and their combined force and power must be brought to bear, and the work is done. The power that heals you is the same power that is in the sunlight, the thunderstorm, the volcano and the earthquake. These powers are utilized in the cure of chronic disease. This power is not composed of the puny remedies put up in bottles; it is the great powers of nature that are brought to bear in the cure of the chronic invalid by natural and physiological methods which are illustrated and practiced here.

You are here seeking health, and you are earnest men and women, and I am glad to see you, and am ready to do all I can to help you. I want to say to you, however, that so far as I am concerned, I am a very superfluous character here. I am only a sort of General Promoter of things. I am not very much needed, because our doctors know everything that it is necessary to know in regard to the cure of chronic and other diseases, and have the facilities for the application of all these natural and physiological remedies. They have all the details, and a full comprehension of every case-kind of case. But I shall now be able to see you, and shall certainly do all in my power to facilitate your recovery.

But we want you to co-operate with us. When your doctor gives you a hint as to what you should do, do it. Do everything your doctor suggests and you will be rewarded by rapid improvement. I have seen many patients

recover, who seemed to be hopeless cases, that I don't dare say to a man, even though he seems almost ready to die, "You can't get well." I did that once,-- I told a lady that her husband was, I thought, a hopeless case. She told her husband what I had told her about him, and he gave me a severe reprimand, saying he had come here to get well, and that he would get well. He promised to do everything that I told him to do,--and he kept his promise, and, although two thirds of his lung had been destroyed, and he had other symptoms of consumption, he recovered. In writing to me afterwards, as he often did, he always signed his name "George Tompkins, E.C." He explained the "E.C." in a foot-note, as meaning "Ex-Consumptive." I was greatly encouraged by this case, for I found that there was more power in these health-principles than I had supposed there was. I have seen thousands of people who came to this Institution for treatment go away well. I met a railroad conductor the other day, and he said, "I have brought forty people here on their beds, and have carried every one of them well away well." He said, "If I get sick one of these days I want to come to the Sanitarium." I am continually getting more and more faith in these principles, and there was never a time when I had more faith in them than I have now,--why I have so much faith in them that I take my own medicine--and our children also take it. Not long since, one of our children had an attack of appendicitis, with severe pain, and I applied a couple of ice-bags over the affected part, and a hot hip and leg pack, and in two minutes the pain was gone, and in two days the child was practically cured. That is better than to go through a surgical operation. Of course there are cases of appendicitis in which an operation is necessary, and we often operate for appendicitis.

Now, my friends, we want to get you into the sunlight, into the cool-bath and into the swimming-pool. Ask your doctor to make the water of your bath a little colder every day. Cold water helps ~~rheumatism~~ and the

kidneys and the liver, and helps in the cure of rheumatism by burning up the uric acid which produces rheumatism, and so, of other diseases--but I must not keep you up too late. As I said, I am glad you are here for treatment, and we will do our utmost to help you to a recovery as rapidly as possible. And when you get home, we expect you will be so enthusiastic in behalf of these principles, that you will each one of you send about twenty of your friends and neighbors here to be cured as you have been.

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OPENING EXERCISES

OF THE AMERICAN MEDICAL MISSIONARY COLLEGE,

At the "South Hall," Sanitarium Buildings, Sept . 25, 1902 .

J. H. Kellogg, M. D., Chairman.

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SINGING,--"Am I a soldier of the cross?"

PRAYER by Professor Prescott.

SINGING,--"Blessed assurance, Jesus is mine ."

CHAIRMAN : This is the eighth opening of our medical school. It hardly seems so long as that, since the enterprise was first begun. When we began this work it seemed to be an impossibility that it should be permanent, but it has continued year after year, until we find ourselves beginning this year under unusually favorable auspices.

I am glad to see that so many of our students are present at this time. One class, however, is not present,--it is in Chicago. If we had all our students here, I think this room would be well filled .. Some one was saying to me, some weeks ago, that ~~they~~ thought that but few of our students would be back this year; that the students of the American Medical Missionary College were largely losing their interest in this work, and that he thought but few of them would be back. But you are here, and the fact that you are here, is evidence that you are interested in this great work; we are certainly very glad to see you here . I have some remarks which I will reserve until others have spoken. I am sure we will all be glad to hear from Dr. Paulson .

DR. PAULSON: I seem to have commenced about where Dr. Kellogg left off. About fourteen years ago, he and Dr. Lindsay were the only "Rational" physicians in the world. When I first came to know something of this work, we had only a handful of students, and they were in California. I think we had no other medical students. The four years that I was here in college, I think, composed the best part of our educational movement. During that time, I got an occasional glimpse of Sanitarium work, and occasionally heard of one of our students going off to study medicine during that time. I think there were four--

CHAIRMAN: There were two.

DR. PAULSON: Dr. Kellogg used to urge the importance of our taking this matter up,--that it was necessary to take up medical work, but it seemed to us like an idle tale. All at once, and within a few weeks time, thirteen of us decided to study medicine, and among that number were Drs. Olsen, George, Rand, Winegar, Burleigh and others. Most of us were then in the Battle Creek College, and it was during the closing year.

That this was a Heaven-sent thought, I think there could be no clearer evidence than this,--that every one of the original thirteen students who took up the medical work twelve years ago, has been true to it; some of them have laid down their lives in it, and the balance have been true to it, and are giving their lives to it to-day. If the same thing shall prove true, twelve years hence--if, twelve years later on, every one of you shall be found true and earnest, and more enthusiastic than ever in this work, I think that will be pretty good evidence that the Lord has called you to it.

Some of our medical students used to spend all their time of study at Ann Arbor, and some went elsewhere, but the Lord helped us, although we had great trials, and Dr. and Mrs. Kress helped us along, and so we con-

tinued our studies until we graduated.

I might mention the fact that our Board decided, during this time, that Dr. Dowkontt and myself should go down to New York and examine the work of Dr. Dowkontt who was then trying to establish a medical mission in New York. The Board decided that we should do this in order to get better views of medical principles. And Dr. Kellogg had said to us, "We will want you to do some of this kind of work in some of our cities in the future." That was prophetic language. Since that time, the work in Chicago has far outdistanced the medical missionary work that was then carried on in New York. This illustrates the fact that when the Lord gives an opening, he always gives a good chance to improve it later on. While engaged in the work in Chicago, I was glad for what I got in New York, although I don't know of many things that I got in the Bellevue Hospital that were useful to me. But there were some things that I learned in medical missionary work. While in New York, for the first time, I knelt and prayed with and for a miserable drunkard, or for a miserable criminal, leaving him with a new song in his mouth. That was my first initiation into that work, and in this manner I there learned many precious things that I have since improved.

Dr. Dowkontt was greatly interested in the establishment of a medical missionary college in New York, and he was a splendid man; but somehow, he did not succeed in opening up that work, although he had a faculty ready for a school. But there were laws in New York which made it necessary ^{for him} to raise fifty thousand dollars, but this he could not do. We were very much interested in the matter, and every Tuesday morning, Dr. Frank Kellar and myself prayed that this medical missionary work might open in New York. One morning, while I was praying for that object, there was a conviction came over me that the Lord would not answer that prayer, and that it was his will that Dr. Dowkontt should not have a medical mis-

missionary college in New York, but that we should have one,, as we represented larger ideas and more truth than he . This seemed strange to me,, as we were the only students there. But I wrote to Mrs. Whitney that we would have a medical college ourselves, some day. After this ~~thought~~ ^{missionary} I came back from New York, this thought clung to me that we would have a medical missionary college, but no one seemed to be enthusiastic about it , and I didn't hear much said about the matter, although several had been thinking hard about it . One evening I met Dr. Kellogg, and he said to me, "The Board did a big thing to-night,--and what do you suppose they did?" I said, "They voted to start a medical missionary college ." He said, "How did you come to think of that ?" I said, "I thought of it, because I have been looking for it ." "Well," said he, "that is just the thing they did."

That was early in the summer, about campmeeting season. I started out and went to the campmeetings after that, and talked "medical missionary college" to the people . During that time, Dr. Kellogg wrote me saying, "We will have a hard time , even if it is possible for us to get this thing under way. We will not have much standing with medical men until we graduate men to show what can be done in our college ." But we got a splendid class together, composed of men and women who had faith in this thing . Remember, we had nothing to show for our medical college at that time , so that everything must have gone by faith. Many said it was a new scheme,--but it started. And, I am glad to say that, right from the start, there were special providences attending this work and aiding it. The Lord helped us, and men helped us when we needed help . Special providences clustered around this movement as the years rolled by, and I can see to-night,--looking back over the six or seven years that have passed, that I can feel in my soul, "Thus far the Lord hath led us." Splendid men have graduated from our school, and now we have men laboring in this and other countries in sister institutions, who have graduated from this school. They have the love of

God and humanity in their hearts; they are trained men and women, and are doing efficient work.

I am satisfied that there is a great future before this school, and I rejoice that there is something for it to do. I envied Dr. Kellogg last night when he was talking about his early opportunities in the work. I would have been glad to have seen the first stone laid, but that was before I was born. But I have had something to do with this school, and I am glad that I have been able to contribute something to this work. Now, I have faith in this thing. I had a vision ^{of this thing} away back in New York, and I have hope for the future. And I hope, as we grow older, and become more competent and absorb more truth of the truth that God has for us when we are ready to receive it, that we shall be able to put more into this school, and I, for my part wish to do more for it.

I am glad that so many splendid young men and women are getting ready for this work, and I feel, in my soul, that they are men and women that God has sent to us, and I hope that nothing will occur that will have a tendency to convince others that it is not so. I trust that we shall feel while laboring in different parts of the world, as the weeks and months go by, that we are fulfilling the great purpose of our calling. It is well to be saved for eternity, but it is better to be saved to serve. Those who are not saved for service don't amount to much. I want to be able to serve my fellow men here. I believe that is the thought that has led you here, and I trust that, as the years roll by, you will be elsewhere, working for others and imparting to them the things which have been ^{imparted to} ~~imparted to~~ and taught you ~~here~~.

DR. KOLDEN: This is certainly quite a surprise to me. The other day, while in Vancouver, I ran two or three miles to catch a train in order to be able to get here in time to attend the opening exercises of this school. When I got to Chicago, I heard that the exercises were held last night,--but I came on, anyhow.

I have received much encouragement in regard to our medical missionary college, when I find that its graduates are running our institutions. Dr. Whitelock has started a successful work in San Diego, Cal., and with very favorable surroundings. The Portland sanitarium is prosperous in every respect; they are paying their expenses, and a great deal more,-- and I am sure that anybody who is connected with the management of a sanitarium, knows that that is a great feature of the work. They are building a new sanitarium in Portland, and the whole thing is being conducted by graduates of the American Medical Missionary College. They have a good beautiful site and a good prospect of paying their debt. They have a good nurses' class, and there is an excellent spirit among the helpers. The same thing may be said of the institution at Spokane. Dr. Dunlap was there when I first went there, but he went to Walla Walla to continue his work and Dr. Varnall went to Spokane. They are quite full, and hardly know what to do with the patients ..

At Tacoma, Dr. Allen has got started nicely, and is conducting ^{the work on} a self-supporting ^{business} basis. He is gaining friends, and, of course he has a large work in view. Dr. Shryock's work at Seattle is progressing finely. They have nice treatment rooms-- (Chairman: I have a letter stating that they are earning twenty or thirty dollars a month.)

St. Helena is the only sanitarium on the Pacific Coast in which our school is not represented. It is a great satisfaction to see the results of training in our medical missionary school in these institutions.

and to see what fine products can be turned out from our American Medical Missionary College .

The institution in Des Moines is run entirely by our graduates; also at Moline, and Madison. These institutions are run by our medical missionary graduates,--and they are run in a creditable manner , too. At College View and other places, it is practically the same . We have not been turning out cheap men and sending them to these places, for they are successful in their work and have the confidence of the medical profession. It looked somewhat doubtful when they first began, but at length the profession could not avoid recognizing our doctors--

CHAIRMAN: You might have mentioned Battle Creek.

DR. HOLDEN: I am only speaking of the places which I have recently visited. I am of good courage and hope to do all I can to make this work succeed more and more as the years go by....

DR. STEWART: I am sure it is very gratifying to hear Dr. Holden's report in reference to the graduates of the American Medical Missionary College. Now there is something that has made our college great. I am sure, however, we all recognize the fact that it is not our great teachers that have made the college great, because none of us have had any very great experience as medical missionaries, ~~it is because of~~ The energy and the success of the graduates who have gone out from ~~it is due~~ this college is due to the fact that they have espoused great principles. And the future greatness and success of the college depends upon the graduates who go out from it; and their success depends upon their adherence to the principles taught by the college. ~~I hope and~~

I hope and trust that every student will set his standard high, and will maintain the dignity of the college, and will do everything they can to further and uphold the great principles for which it stands .

I have been in the work now , for quite a number of years; and when I first entered it, I had some idea of what medical missionary work meant, but I must say that I had but a very small conception of it, at that time, as compared with the present time . I tell you it is a very solemn thing to take up the medical missionary work. In this work, the medical man really stands between the patient and his Maker. It is the office and the function of the medical missionary physician not only to help nature in her curative work, but he must also point the patient who to the One who does the healing. The doctor does not heal; it is the Lord who does the healing . We must always recognize this fact; if we do not do that, we will fail in our purpose. I repeat, that I hope each one of us will be faithful to the principles that we love so dearly.

DR. THOMASON: I am glad to add my testimony to that of those who have already spoken in reference to these principles. I thought, last night, as the Doctor was speaking, and relating his experience and struggles during the last thirty years, and ^{listened to} the testimony which he bore, that these principles were to-day dearer to him, and meant more to him than ever before , others bearing a similar testimony,--when listening to these testimonies, I was reminded of Paul's experience and testimony in reference to the results of a Christian life: When he was about to lay down his life, after passing through all his struggles and trials of his past life, he said, "I have fought a good fight; I have finished my course." And I am thankful to-night, for the few years' experience which I have had in connection with these principles, for they mean more to me than all the rest of the years of my life.

Such a life-work is ~~like~~ like the path of the Christian,--~~it shines~~ it grows brighter and brighter, and surely it will, some day, shine as the perfect day. It seems to me we should all bear in mind the injunction of Solomon, "Let not the truth forsake thee; bind it about thy

neck; write it upon the tables of thine heart." Paul says, "Meditate upon these things; give thyself wholly to them." It seems to me that these is what we should consider the pearl of great price, to gain which, a man may well afford to sell all that he has. I do rejoice in these principles to-night. They are sweet to me now, and they grow sweeter day by day. I expect my life will be wholly devoted to them, and I trust that we shall all be faithful to them until they triumph in the earth. I am glad to be associated with so many who love these principles,--and they are much more numerous than when I began this work. I had the honor of belonging to the first class in this school, and I can see that the prospects of the school have been growing brighter ever since.

I suppose that sometimes some of us are tempted to look forward to the close of our college life before we can expect to do very much with these principles; but you remember Christ said, in reference to the harvest, "Say not, 'There are yet four months, and then cometh the harvest.'" So we may well say to you, "Say not, 'There are yet four years,' or 'three years,' or 'two years, and then cometh the harvest,'" for God has given us abundant opportunities to shine, to manifest them in our lives while passing through our course of medical instruction.

I trust that God will give each one of us such an intense love for these principles that they will be more precious to us than life itself. We cannot give our lives for these principles, because they are our life. Christ said, "I came that ye might have life, and that ye might have it more abundantly,--" and that is what God has given us in these principles, and for this I am very grateful to-night.

DR. MORSE: Fellow Students, --The question frequently runs through my mind, as we hear different phases of our work discussed, and in that connection we hear about "truth." What is truth? I am reminded of an expression once made to one of his classes, by Professor Bell, who was a very fine man--one of nature's noblemen, a very quiet and reserved man, a man who thought deeply and observed accurately, and stated things plainly, as he saw them--and as he was looking into our faces one day, he said, "The most difficult thing ^{to do,} that I know of, is, to tell the truth." I have thought of that many times, ~~as~~ I have had many opportunities of meeting new people, and I have had as many as five patients in one week tell me that they came to the ~~Sanitarium~~ Battle Creek Sanitarium, because they knew that the doctors here would not lie to them. When I asked them how they happened to come here, they would say, "We knew you would not tell us lies." I told them we would tell them the truth, so far as we knew it.

That is what we stand for. When we speak of standing for truth, we mean that we are standing for right; that we are not playing with our patients; that we are not palming upon them something that we know to be false; that we are telling them, as near as we can, the truth as God has shown it unto us. And, in a medical way, I don't think there is an institution in the world in which so much can be learned in regard to diseases and their causes and the removal of those causes as can be learned right here. A gentleman, the other day, wanted to know what I thought of a young man's taking a course in this school. "I told him that I had done so, and that if I had to make the choice over again, I would do the same thing again,-- I would take my course here .

This work has been life to me, --and that reminds me of this fact: We cannot teach others things which have not become a part of ourselves; it must be a living thing in us, or we cannot tell the truth in regard to

it,--we are not telling the truth about it . We may enunciate the truth verbally, but if it is not a part of our lives, we have told an untruth somewhere. As we look at it in this way, it greatly enlarges our task, in standing for the truth. To my mind, no one can stand for the truth, who does not live the truth that he preaches. ~~Our truth~~ The truths taught here are very simple. Patients come here, and they give ^{me} rough outlines of their history and treatment by their physicians,--that they tell wrong stories, and patients are sick and tired of the whole thing . They feel as one lady who came in the other day said she felt. She said she had brought her husband here, after a long journey, and that the physician at home had simply been playing with the patient, and he knew it, and she knew it . But perhaps the physician in that case did the best he knew how . Here we have the opportunity of learning the true condition of the patient, and the causes of his trouble, and we should highly appreciate these privileges and advantages,--and I am sure we do.

It seems to me that the privilege of being connected with this work is the greatest that we could aspire to, and I praise God to-night that he gives each one of us this privilege. We are all learners together in this work; there is never a time when we cannot learn something new. And, as God teaches us, and as we seek to know the truth together, let us remember that no honest question after truth will be unanswered; it may not be answered to-day, but it may be to-morrow; in God's good time it will be answered to such an extent as we can use for his glory,--it will be answered either here, or in the eternities, in reference to which our work here is done .. (2)

MEDICAL LECTURES

Physiologic Therapeutics, Sept. 26/02.

J. H. Kellogg, M. D.

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We will commence by talking about what we are going to do. There is every indication that the era of physiologic therapeutics has arrived. The history of medicine has been marked by numerous eras of various sorts. There has been an era of blood-letting. There has been an era of depression. There has been an era of using tonic remedies. There was at one time, a theory dominant, that when a man was sick, it was caused by too much vitality; that if he had a fever, it was because he had such a great supply of vitality, — that it must be reduced, so the patient must be bled, purged or given emetics, so as to reduce his vitality. That was the plan pursued in treating the Father of His Country, George Washington. He had taken a severe cold and had a sore throat, and he was treated by bleeding and purgation, and one day he was bled until he nearly fainted. But he still had a fever, and so, the next day he was bled again until he nearly fainted. Several pints of blood were withdrawn, and on the third day he died. At the present time, if a doctor should treat a patient as George Washington was treated, he would be prosecuted for malpractice, — there is no question about it.

This period was succeeded, some forty or fifty years ago, by the theory that when a man has a fever, his vitality is low, and it needs to be stimulated. The old theory gradually gave place to the theory of stimulation. The idea prevailed at that time, that alcohol is a powerful stimulant; that it was a promoter of life and

vitality. So alcohol succeeded bleeding. At the time I began to study medicine, thirty-six years ago, the administration of alcohol as a stimulant was coming into practical vogue, and bleeding was almost universally abandoned. Alcohol was recommended as the one great thing for a stimulant, and it was the custom to give a patient from one to three pints of brandy every day. I remember Dr. Austin Flint, who was then teaching medicine in the New York Bellevue Hospital in the medical college there,--he used to encourage us in giving brandy to patients; he told us not to be too chary of our brandy, and not to be afraid to give it; that we should push the stimulation; that we should use brandy, Scotch whiskey, or some other good stimulant, and should administer one to two ounces every hour; that if the patient's pulse was too rapid, we should give this kind of stimulant until the pulse came down, no matter how much it required. That simply meant that the fever patient should be made drunk,--in other words, that when a man was sick he must be kept drunk until he died. That was practically what it meant. Milk and brandy,--brandy punch--was, in many cases, the only thing the patient got. The idea was, that you could not give a patient too much alcohol in fever--it was impossible to give him more than he needed.

It is very interesting to know how reform, in this respect, started. In the London hospitals, the brandy bill became so high that it became the greatest public item of expense, and the Board of Trustees who had charge of the finances of the hospitals, also the stewards, began to make complaint of these great brandy bills, because it cost thousands of pounds to furnish the hospitals with this "stimulant." And there were many old toppers who were covet-

ing a bed in the hospital; they were making believe they were sick, so as to have a hospital bed, and have their brandy punch supplied to them as often as they wanted it. So the Board made complaint, and the hospital management began to persuade the doctors to see if they could not diminish the brandy bills, and pretty soon, by comparing notes, the brandy bills were found to be reduced. These facts were stated in the medical literature of the time, but you will not find it in the text-books as I have stated it. I have noted the reports in the medical journals, concerning this question,--there was a discussion in reference to which hospital was getting along with the least brandy, as there was some emulation in that respect. By-and-by the London Temperance Hospital was established. That was some twenty years ago. It was then shown that pneumonia, typhoid and other fevers could be treated without brandy as well as with it. However, the Temperance Hospital has not had a fair chance to show what may be done without brandy treatment, as they have never employed hydrotherapy. I have been there, and have tried to persuade them to introduce hydrotherapy, but they did not adopt it. They tried to substitute other drugs,--trying one drug after another--in place of alcohol. But the patients got along better without brandy than with it. A number died, but others recovered; so it was evident that a patient might recover without either bleeding or brandy.

About that time, Brandt came forward in Germany, and demonstrated some of the wonderful results of hydrotherapy.. He showed that when patients are treated in a thoroughgoing manner, with hydrotherapy, mortality was reduced one or two per cent.. And, after he got others to co-operating with him, ⁱⁿ ~~and~~ employing hydriatic meth-

ods, including the cold bath in fevers, he was able to collect a list of 800 persons who had been treated without a single death.

Typhoid fever, in the days of bleeding, was a very fatal disease. Twenty to thirty per cent. of the patients died. And when brandy or alcohol stimulation was used substituted for bleeding, the mortality was not quite so great, but about 20 per cent. of the patients died. I remember, when we reported before our County Medical Society, in the spring of 1877, a series of 35 typhoid fever cases treated in succession, and without a death, they all rose up in indignant protest, declaring that it was impossible that typhoid fever cases could be treated with such success without alcoholic stimulants; that it could not have been typhoid fever, and must have been malarial fever. But if these had been cases of malarial fever, and had been cured without quinine, it would still have been a victory for us. But the cases were typhoid cases,--there is no question about that. This disease got into the Battle Creek College and they had a very serious time.

By degrees the world began to see that a fever patient could be treated without either bleeding or stimulation. Then the facts about alcohol began to come out,--that it was not a stimulant but a depressant; that it was not a vitalizer but a devitalizing agent; and it was finally conceded that it was not a food but a poison. As we look back upon these facts, we wonder that intelligent men could have gone on for so many years under the spell of such a delusion--going on year after year, bleeding patients almost to the point of death, thus reducing their strength and vitality, using alcohol year after year as a stimulant; until thousands of patients died. But it had become the fashion to treat fever patients in that way.

When I began to practice medicine, and treating

and to treat fever patients without liquor or medicine of any sort, it was looked upon as malpractice. When I first began the practice of medicine I was afraid of the charge of malpractice, because I didn't make use of drugs. It was a difficult thing for a man to deal with a case in those days without using the regular drugs. Now that state of things was due to the power of example, and the use of precedent over the mind. About the greatest crime that could be committed in the medical world (this is not true now, but it was in those days), was to refuse to recognize the ancient teachings of the profession. If a man should stand up and deny the truth of the ancient traditions of the profession, he was looked upon as a knave, and an impostor and a charlatan, --that he was trying to make a name for himself, to the disgrace of the ancient science of medicine. Some eighteen or nineteen years ago this fall, there were charges brought against me by our county medical society, and for two years, most determined efforts were made to turn me out of the society. The principal charge against me was, that I had undertaken to start a new school of medicine, known as "Rational Medicine," and the "Home Hand-Book of Domestic Hygiene and Rational Medicine" was brought forward as an evidence of this, as a part of the title of the book was, "Rational Medicine." Those who preferred the charges had never heard of "Rational Medicine;" their medicines were in no way rational, and so I had a great battle with them. The only thing that saved me was my own vote. When the question as to whether or not I should be retained in the society, I voted for myself (and that is the only time I ever did vote for myself) and that vote decided the question and I remained in the society. I voted for myself, not on my own account so much as on the account of

progressive professional men who should come along afterwards,--for I had a picture of them in my mind--and for you. I knew if I went out, that all these would go out with me; and I knew that if I remained in the society, although I differed from nearly all of them, and they did not recognize the truth and the propriety of the things I was doing for my patients, still I thought it was my duty to stay in. I remained in for the sake of progressive men and for you,--for the sake of keeping you in, as well as others who might become "rational" in their ideas of medicine, so I voted for myself and all my colleagues.. It was a victory over a determined effort to cast out the Sanitarium, and to bring discredit upon its principles and methods .

"Well," you say, "why not have started a new school?" "Would it not have been a good thing to start a new school?" No, it would not have been a good thing to start a new school . I felt that there were all kinds of "regular" people that were being rescued from error. I found a doctor occasionally speaking plainly and rationally in regard to medicine. Dr. Oliver Wendell Holmes, who was Professor of Anatomy in the Medical Department of Harvard University, sometimes in the '40's, read a paper before the Massachusetts Medical Society in which he said "It would be better for mankind if all the drugs in materia medica were cast into the sea, but it would be bad for the fishes." He had the courage to stand up before the Society and make this statement, and they did not cast him out. And Dr. Jacob Bigelow had written a very interesting essay entitled "The Paradise of Doctors," a fable¹ described the people of Boston as having given up all kinds of business, and gone into the manufacture of drugs, and the people had all gone to eating drugs, and the result was, that they had all become

so weak and emaciated that they were walking skeletons,--he gave an awful description of the evil effects of drug-eating. By-and-by an accident occurred which demonstrated the true character of drugs: Two ships went out from Boston Harbor. One of them was overtaken by a great storm, and were obliged to throw their medicine chests in order to lighten the vessel sufficiently, and the crew were obliged to resort to ordinary food. Now it had been supposed that those who did not consume drugs would die; but these men returned vigorous, hearty and well. But the crew of the other vessel, who had been eating drugs, returned, pale, emaciated, hollow eyed, sick and cadaverous. This showed the people that they could live and enjoy good health without drugs. This fact created a general revolution in the town, so that the business of drug-eating and pill-taking, as well as the manufacture of drugs, came to an end. They had a great meeting and compared notes. By degrees a reform set in, and the era of RATIONAL MEDICINE began. It is quite an interesting fable. Dr. Bigelow read this paper before the Massachusetts State Medical Society. Dr. Oliver Wendell Holmes read before the same society a very interesting parody on "Rip Van Winkle." This is a poem entitled "The Rip Van Winkle M.D.". In this poem he describes the old-fashioned doctor with his drugs and pills. He also describes the Doctor of the future, who, instead of confining himself to drugs of all sorts, will be a rational physician.

These things were encouraging. Now and then an English professor would speak out a few words of truth. I studied the medical works of the University of Michigan, and spent a great deal of time in studying medical journals and treatises to find a few words or sentences speaking favorably of rational medicine,--and I sometimes had to search a long time before I found them. I also

studied medical works and investigated laboratories in Philadelphia, and here and there I would find some little hint about the time coming which would be an era of rational medicine--of physiological medicine and of rational principles founded upon physiological truth. These things encouraged me, and I took pains to publish/ them in Good Health, and you will find them in back numbers of Good Health,--many truths that I had gathered up at considerable pains and expense from different medical sources, with which to fortify my own courage. So, when this effort was made to turn me out of the Society, ,I thought I could see that there was a better day dawning in the medical profession, so I wanted to remain in the medical profession, because I thought there was a chance for a larger work, for, as soon as some one starts something new, others follow...I thought it was better to carry on my work in a quiet way, reaching the medical profession through books and papers, and especially through our Institution where these principles can be illustrated and demonstrated.

in America

At that time, there was not a scientific ~~institution~~ medical institution of this kind ,with a scientific educated physician at the head of it . This Institution did not start in the regular way; it started in an irregular way. When this Institution started at Battle Creek, it was simply a water-cure,--a kind of a branch of the water-cure at Dansville, N.Y., of which Dr. Jackson was the superintendent. Dr. Jackson was an antislavery agitator and a temperance lecturer. He became broken down in health, and went to a little water-cure in Glen Haven, N.Y....The proprietor died after/Dr. Jackson went there. Dr. Jackson had been working his way there as a sort of business manager

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a sort of business manager. The proprietor died and Dr. Jackson ~~did~~ took up the work and went on with it. He was not a doctor, but it didn't require a doctor or a man with a medical education to conduct a water-cure; there were no medical laws then. After a time, this institution turned down, and Dr. Jackson found a deserted summer resort upon the hills of Danville, and built his "Home," as it was called up his "Home on the Hillside," as it was called, and for many years the institution at Danville was called by that name.

In 1863 or 1864 our people here in Battle Creek became somewhat interested in these principles,--health-reform, water-cure, etc.--and foremost among them were Mr. James White and Mrs. White, his wife. Mr. James White was broken ^{down} in health, and one day he had a stroke of apoplexy, and he became very feeble, so that he was scarcely more than a child, and his wife took him to the "Sanitarium" at Danville. Dr. Andrews had his son there,--Dr. Charles Andrews, who works in the Review and Herald Office Publishing House. He had had paralysis so that one leg became three inches shorter than the other--he was paralyzed, and his father took him to the Danville institution. He received treatment there, and his paralyzed leg grew out to the proper length, the paralysis was overcome, and he was perfectly restored. Our people, generally, knew about that,--Dr. Andrews wrote about it. Dr. and Mr. White stayed six months at Danville, and Mr. White was much benefited by the treatment that he received there. We had with us, Dr. Lay, whose wife had hemorrhages from abscesses; he took her to that institution a few months before Dr. and Mr. White went there, and he was there ~~with~~ Mr. White was there, ^{and} he was working with the doctor. Dr. Lay

had had three months' training in a medical college in Detroit (I think it was in Detroit), and you can imagine about how much that would do for a man. Well, he had learned a little. He came from Dansville here. Ed. White came back here, having a little farm in the country, and he and Dr. Lay opened a little health-reform institution here, starting it as a "water-cure." Dr. Lay was succeeded by Dr. Ginley, an Irishman who had had about three months' training in a homeopathic medical school.

So the first era of the Institution was an era of drugs mixed with water,--that is, strong drugs mixed with water. The second era was an era of little pills instead of big ones, mixed with water; this was not rational nor scientific. So you see how little was known of scientific hydrotherapy or the principles of hydrotherapy when I took charge of the Institution in 1876,--I had been connected with the Institution before that, as my father was treasurer of the Institution, and I assisted him. After I took charge of the Institution, one of the doctors of the city, an old surgeon, said to me one day, "I want to tell you something funny. At one time, there was a case here, of hernia, strangulated; and so the doctors sent for me to come up and perform an operation upon the patient. So I got my instruments together and came up here to perform an operation. When I got here and examined the case, I asked them if they had given the patient a warm bath. They said "No," they didn't know but a warm bath would be good for him. So I said, 'Let's put him in a warm bath.' So we put him in a warm bath, and in fifteen minutes the rupture was reduced, and the patient didn't have to have an operation." The Doctor said it seemed strange to him that those people who made a specialty of using water didn't know enough to

give that patient a warm bath, and so they had to have a surgeon and a drug - doctor come up there and show them how to use water. Dr. Thomason has reported a similar case in the Old People's Home, in which the doctor did not have to use the surgeon's knife, but, instead, used the warm-bath successfully. This is a knife that is always sharp, and works as well now as it did thirty years ago. The patient is getting along well, is he not? (Dr. Thomason: Yes, sir.)

But those people were doing the best they knew how. They were standing up for principle,--and that is the important thing; so we were respected by members of the medical profession. Dr. Ginley and Dr. Lay were living up to all the light they had. There was no place where they could go and learn hydrotherapy, so all they knew about it was what they could pick up, and they had to do that by their own experience and observation. Dr. Lay knew nothing except what he had learned of Dr. Jackson who was a layman,--he had never graduated at a medical college and learned what he could of other laymen. But those were the days of small things.

When I came into the Institution in 1876, I found this situation: The patients' ^{called} roll-call was made every morning. The doctor would then sit down and ask what treatment each patient had had, and what the ^{result} ~~effect~~ was. But there was no real understanding of the physiological effects of remedies,--the sitz-bath was "good for everything;" the wet sheet was good for everything, etc.,--and this is true--that which helps a part helps the whole. But there had been no study, and no experiments made to find out the physiological effects of these remedies, and placing these principles upon a solid basis, placing each one upon its own foundation, and recognizing the characteristic and specific value of each

each individual method and remedy. They had no means of getting at these things then; physiological laboratories did not exist in those days,--at any rate, there was only a beginning. Lehmann and Liebig, of Germany were laying the foundation of physiological chemistry in those days. There were only two little treatises upon the subject then. Liebig was then Professor of Agricultural Chemistry, and he had worked out some physiological principles, although some of his ideas were very wrong. These men laid the foundation of physiological chemistry; their books were the first that I found upon the subject, and I began to see that in physiological chemistry there was a coming science that was going to deliver us, and I felt anxious to engage in it.

When I graduated in medicine, in 1875, in Bellevue, I determined to go to Germany, because I saw that that was where the light was coming from, and I decided to go to Germany and engage in the study of germs and physiological chemistry, for I saw that there was a wonderful field for discovery in that direction, and I determined to devote my life to that end. When I came back to Battle Creek, things were getting in a bad way, and the whole Institution was reeking with quackery. The Board were distressed about it, doctors became discouraged and resigned, and finally the Institution was without a physician. I was elected as physician of the Institution, and we then had twenty patients ~~which~~ Eight of these patients left ~~when I came in~~ left the next day, so there were only twelve left. They said they were going to have a little boy for a doctor. They were certainly in a bad predicament,--I pity them, when I look back upon the situation.

This was the first day of October. We went to work, and by spring we had a hundred patients, instead of twelve. We had a number

of cottages, and they were full. We needed a new building, and we put up the first large building with borrowed capital. We had \$3,000, and with this \$3,000 we expended \$115,000. Some people think we are making a great venture now, but we made a great deal larger venture then, and it required great faith to do it.

So that, now the battle seems almost won. It seems as though the enemies of rational medicine were all on the run and were hiding in holes and caves, and trying to get out of sight. Because, the fact is, the era of Physiological medicine is come, and the era of medical tradition and prestige is nearly gone. Doctors, at the present day don't care anything about what doctors said or taught ten or fifteen years ago. Medical theories of that time have been completely overturned. The whole science of medicine has been going summersaults, whirligigs and all sorts of shins during the past fifteen or twenty years, and to such a degree that there is really no established system founded on the old basis--none at all. The only established system that can be found in medicine to-day, is the physiological system. If the physiological basis is not recognized as the scientific basis of medicine, then there is no science in therapeutics.

But pharmacists and the manufacturing chemists have helped us. The manufacture of drugs was a great business, and manufacturers of drugs sent out emissaries to find new drugs. If they heard of a poison, they would go after it; if they found something that would kill dogs, in laboratory experiments,--if they found something that would kill, that was the very thing they wanted as a remedy for the sick. So they began such experiments upon men. That is

what Paracelsus, the father of quackery, did. He was a Spanish physician, and he was the man who discovered antimony, arsenic, and many other well known drugs. He was the one who first began the use of mercury. He was even the discoverer of alcohol, and he was the first to recommend pure alcohol as a remedy. There was a monastery near by where he had his laboratory, and there were a number of monks in it. Nowadays, monkeys are made the subjects of experiments, but in those days, monks were considered good enough to serve as the subjects of experiments, and he made his experiments upon these monks, and he found that when he gave them antimony, they died. "Antimony" ^{is} was the name that ^{has been given} ~~XXXXXXXXXX~~ to this new chemical or drug. Paracelsus named it "anti-monk." "Mona" is the Spanish word for monk, and that is where the word "antimony" comes from,--it was called "anti-mony" because it killed the monks. Now it was claimed that the thing that would kill monks was good for other people who were sick.

We have now come to a time of enlightenment, and it is very fortunate for you that you have entered upon the study of medicine in his enlightened day when you can practice rational medicine without being turned out of the medical society. You won't have to fight the medical profession because you use water. One of the charges against me was, that I had prescribed cold compresses for pneumonia; they said that was deadly,--it was not "deadly" to give antimony--that was just the thing for pneumonia; it would kill a well and healthy monk, consequently it was a good thing for a man who was sick. Antimony was a great remedy for pneumonia in those days.

After passing the Dark Ages of the medical profession, we have come to an age of freedom, and I am glad to find myself still within the pale of the medical profession. I am sure that I was at one time, at least, looked upon as a questionable character. I have for years been looked at askance by physicians. But, little by little, they have been acquiring confidence in physiological medicine, and as they gain this confidence, they have confidence in our work here, so that it is possible for our college to be recognized as a creditable member of the American Medical College Association. Such a thing would have been impossible, twenty years ago. At the present time, our college is recognized as one of the foremost medical schools of the day, and its teachings as being rational and scientific. Of course every one does not endorse our theories, but in those things in which we are not endorsed, we are tolerated, and that is the next thing to endorsement; tolerance comes first, and recognition and approval come afterwards.

Of course we don't expect to be popular,, for reform never can be popular. But if we receive a sufficient amount of recognition and a preciation to enable us to go on ~~with our work~~ and do useful work, that is all we ask for. It is like ploughing: After the first furrow has been turned, it is easy to turn the next, because it is easy ^{for one} to follow in the path already made. But reform work is like a plowshare, and I have often thought, when I saw a furrow turned up, what a hard time the plowshare must have had, --how it had to be rebuffed and rebutted, and what a hard and difficult time it must have. I have felt keenly while engaged in this work, --I have at times felt as though I was a sort of plow-point and was being put thro' that kind of work. This is not always pleasant, but there is always a satisfaction in feeling

the satisfaction of feeling that you are making a path for others, and tearing away obstructions and making it easier for others to follow in the path of reform. And every one of you has that opportunity, because there are many corners of the world where enlightenment has not reached, and if you will get your souls filled with enthusiasm for these truths, you will find some places in the earth where the soil has not been penetrated, and the plow of reform is needed, and you can engage in the work of tearing down error, planting the seeds of truth, and having the pleasure of seeing them grow.

We will talk about these subjects and endeavor to master them as we go along. I will put down the subjects of study: One of these subjects will be "Dietetics." You will be astonished to see how large a part this subject plays in the treatment of disease. I asked the assistant of Dr. Boas, of Berlin, if they used drugs in treating ^{his patients} ~~chronic dyspepsia~~, and he said, "No,--no drugs." "How do you treat your patients?" I asked. "By food,--that's enough." "Don't you use water?" "Sometimes we use the wet girdle, and a few other things of that kind; but diet is the remedy." And the same thing is true as regards Professor Ewald. And Professor Kutono (?), Professor Ewald's assistant told me the same thing,--he said, "We don't use pepsin nor hydrochloric acid." "What drugs do you use?" "Practically, none;--we use bismuth in cases of ulceration of the stomach--but food is the remedy."

That is a different state of things from that which existed ten years ago. If there is a center of medical colleges in the world, it is Berlin. Berlin, Vienna, and London are looked upon as the great centers of medicine, and probably, of these, Berlin must

be considered as the greatest. Such men as these have made great revolutions in medicine, for example, Professor Virchow, who has just died. This gives us great confidence in our work, --that it is on the right foundation.

Now I will put down some of the subjects of study:

Hydrotherapy,

Phototherapy,

Exercise,

Electrotherapy,

Massotherapy,

Kinesopathy,

Manual Swedish Movements,

Thermotherapy,

Climatology.

You see there is quite a list of things that we need to study.

I think we will take up, at the beginning, The Physiology of Exercise, because I want to get you interested in that subject, ^{for your own good.} I see that most of you have rosy cheeks and splendid physiques, and I would like to see you keep yourselves in as good condition as you are now, and remain well, hearty and vigorous. You ought to come out at the end of the year in better condition than you are in at present. I don't see why a medical student should run down, --I am going to talk to you about that...We are going to make medical experts of all of you in physiologic Therapeutics.

LECTURE TO MEDICAL STUDENTS, Sept. 30, 1902.
GYNECOLOGY.

Urinary diseases--Causes of .
J. H. Kellogg, M. D.

PERHAPS the first thing for us to consider, in the beginning of the subject of Gynecology, is the question, What is the province of this subject? How large a field does it cover? There has been a wonderful change in medical opinion upon this subject since I began the study of medicine. When I was studying medicine, we heard a great deal about "The reflex symptoms of pelvic disorders," about "the remote symptoms of pelvic disorders," and about "the protean symptoms of pelvic disorders." Drs. Tillet (?) and Bennett (?) have published books in which they call attention to the subject of "Erosions," and they publish prints and plates of various kinds of erosions ~~which are found~~, and they attributed these ~~erisions~~ to all sorts of remote and obscure causes and symptoms,--symptoms of what is now known as neurasthenia. ~~The~~ These symptoms, when occurring in women twenty-five ~~years ago~~ or thirty years ago were regarded as due to erosions. At that time, the ~~name~~ name "Neurasthenia" had not been invented by Dr. Beard, so, when a woman was found to be suffering from nervousness and had an erosion, the erosion was held responsible for it. Erosions were treated very vigorously, and nitrate of silver was the universal remedy; pure nitrate of silver or lunar caustic was applied. This had the effect of stimulating the growth of tissue, or to form cicatricial tissue, which thickened more and more, and we often found, in cases which were treated in this manner, thick masses about as big as the finger; the erosion had been healed over, the nitrate of silver entering into combination with the tissues and forming an albuminate of silver. It had been healed ~~up~~, but in a short time it broke out again, so that women were continually

under treatment for erosions. Dr. Hewitt discovered "flexions, ante-flexions," etc., and he attributed terrible consequences to all these flexions--even slight flexions. A woman might not have a local pain, or inconvenience, yet, if she had a headache, neuralgia, indigestion, inactivity of the bowels, was weak, feeble, emaciated, if she was anaemic, if she had a loss of appetite, if she had epilepsy, or any other difficulty of any sort, it was attributed to a "flexion." All sorts of things were done for these "flexions": The uterus was brought forcibly into place, and operations were devised for the cure of ante-flexions and other "flexions." One surgeon proposed to cut a wedge-shaped piece out of the back side of the fundus, pulling the uterus down so that the fundus should be reached, and then cutting out the wedge-shaped piece,-- (Illustrating by diagram.)

Patients of this class drifted round from one gynecologist to another, because, while they were sometimes temporarily cured, they ~~was not~~ did not remain cured. There was no value in such gynecological treatment as they received, except as a mind-cure, in a great majority of cases. At the present time, I think there is no intelligent gynecologist who has kept up with the progress that has been made in medical science, who has any faith whatever in the doctrines taught thirty years ago in relation to pelvo-local (?) symptoms, ante-flexions, etc. If there is a pelvic disorder which requires medical attention, it will produce some local symptoms which are tangible. If there are no local symptoms of any sort, and no local evidence of disease, then there is nothing that requires attention. The attention of gynecologists and of the medical profession generally has been centered too closely upon this portion of anatomy,

in dealing with the diseases of women. Of course, in taking charge of a case in which a woman is sick, it is proper to inquire into the condition of the pelvic viscera. Sometimes, when there are no prominent or direct symptoms of the pelvic organs, it is sometimes well to go so far, even, as to make an examination of the pelvic viscera, when there is reason to believe that there may be disease present. As an illustration: Take a case of constipation: constipation is a ~~disease~~ ^{disturbance} of the bowels--of the intestinal canal--and yet it is possible that that constipation may be due to some ~~obstruction~~ mechanical obstruction of some of the pelvic organs,--for instance, it may be due to retroversion. So, when a woman suffers from vomiting which does not readily yield to ordinary treatment,--it may be that there is some pelvic condition which is the cause of it; there may even be pregnancy which has not yet been discovered, or there may be some other condition of that sort which may be responsible for the vomiting, and it is important to know the facts; but we will not persist in the treatment of disease when we have no traces of the cause.

I think we may conclude that ~~when a woman is suffering from~~ ^{may suffer} from some disorder besides pelvic disorders,--that we are not to suppose that every sick woman suffers from pelvic disease; there may be pelvic diseases which require treatment, and she may suffer from other maladies which have no connection with, and are not at all dependent upon pelvic disorders.

Gynecology is a very modern branch of medical science.

The science of gynecology really began in Montgomery county, Ala., more than forty years ago, when Dr. Marion Sims discovered methods for successfully operating for the relief of vesico-vaginal fistulae and recto-vaginal fistulae.. Dr. Emmet, who was also a Southern man, took

up the matter in New York, following Dr. Sims,--and Dr. Peasly also, who was associated with Dr. Emmet. These men were the founders of American gynecology; and that was the only gynecology which existed for many years. And even at the present day, America leads the world in gynecology. Some European surgeons have surpassed American surgeons in some other branches of surgery, but gynecology in America is certainly ahead. Italy is probably ahead of all other countries, except America, in gynecology, because Italian surgeons have followed American methods. England considers herself the mother of America, and consequently she would not wish to admit that she has learned much from her, so American methods have been but slowly adopted in England, except by some of the most progressive men. Germany considers herself the center of learning, so she is not in a state of mind to learn much from America. France considers that she is the originator of everything that is good, and so, does not profess to learn much from America. We can scarcely find anything that has ever been discovered in medicine, but that France claims to have already discovered it, and that it can be found in her cold medical works, which shows that some Frenchman discovered it long ago, and it can be proved by their periodicals, books and laboratories. It is remarkable how much proof of that kind is going about, showing that France is the "medical China," as you might call it, of modern times. You know, it is claimed by the Chinese that the magnet was discovered in China long ago; that it was known there long before anybody else knew anything about it.. They also claim that gunpowder was first discovered in China long before Europeans knew anything about it, and that the art of printing was discovered in China long before the discovery of that art in Germany by Gutenberg.

I think it is very important that we should have some of these facts in our minds before we begin the study of gynecology. But we shall not find the subject of gynecology so large as is represented in medical literature. You will read a medical work on this subject, by some distinguished author, with a well-known publisher's name at the bottom, and you would think that what you read there must be sound doctrine; but before you get along very far in practice, and even before you graduate, you will find that you cannot rely altogether on these medical opinions, no matter how high their reputation may be. The thing we want to know is the truth. But you read a work by one distinguished medical author, and then read another book on the same subject by another medical author who is equally distinguished, and this author will pronounce the doctrines of the other author as "bosh," "error," etc., and your confidence ~~in the author's~~ begins to be shaken, and you will by-and-by begin to discover that prominent authors differ in their opinions, these opinions being the result of the outgrowth of the experience of each author.

But there are certain ^{general} truths in which all medical authorities agree, and these truths are generally accepted. But the special views of individual men must be accepted with a great deal of care; they must be carefully investigated before they are accepted.

Suppose we begin the real study of our subject by a consideration of the causes which are responsible for the maladies from which women, especially, suffer,--the genito-urinary diseases of women. Dr. Thomason has given you the anatomy of the subject, so we will not go into that. And we will not now, even enumerate the different diseases which are known as gynecological maladies,--but let us consider some of the causes.

In my opinion, the one great cause of the special maladies from which women suffer, is Civilization. Sometime ago, I read, or rather glanced over the contents of a book entitled, "The Cause and Cure of Civilization." This struck me ^{as being} an appropriate title; and there was some very striking things in that book.--I will repeat what I have been saying, as some did not appear to be paying attention,--the great cause ~~from which women~~ of the diseases from which women especially suffer, and the cause of the growing weakness of women in civilized lands (for those are the only places where we find this degeneration taking place), is, Civilization. I think we ought hardly to charge this degeneration all up to civilization in a general way, but to the perversions of civilization; because we receive many benefits from civilization, and we would hardly know how to get along without *Civilization* ~~itself~~ and return to savagery again. But there are certain perversions of civilization which are not necessary for the progress of the race, and which are, as you might say, barnacles upon the ship of progress, and are evils which have grown up along with the great benefits and advantages of civilization,--along with these advantages have come certain evils which are not at all necessary to civilization, and which are the incidental results of civilization.

Let us see what civilization has done for woman: In savage countries, women and men live under very different conditions from what they do in civilized countries. In savage lands, the woman does her share of the manual labor to be done; she lives out of doors almost as much as the man does,--in fact the home of the savage is almost equivalent to living out-of-doors.; it affords scarcely more seclusion than does the nest of the bird, or is afforded by the limbs and boughs of a tree for the squirrel, the ape, the monkey, the orang outang and the gorilla who make their home there.. So we may

say that the savage lives out-doors,--he lives in the sun, and in the fresh air, and in the rain, so he occasionally takes an involuntary bath, and he is wet from the rain and the dew. And he many times swims across streams, having no boat in which to paddle across, so he must wade or swim the streams. Savages are great swimmers. Even the children swim about in the water like ducks. And this out-door life, which is shared alike by both savage men and women, produces strong women as well as strong men, the women being almost as strong as the men.

In savage countries, the average height of the women is five feet four inches, and that of the men is five feet eight inches. In Patagonia where the men are reputed to be extraordinarily tall, the women are only about an inch shorter than the men, as a rule. Among the North American Indians, the woman nearly equal the men in strength. When the women of the savage tribes are seated, their height is about the same as that of the men when seated, because the legs of the women are shorter than those of the men. This shortens the height of the women when standing up; but the sitting height of the women is practically the same as that of the men. The women are often more enduring than the men, ~~among the savage tribes in civilized lands~~

^{used to be} In Tasmania, the women ~~are~~ more agile than the men. A woman ^{would} stand on a cliff twenty or thirty feet above the water, look over the cliff and discover a fish in the clear water and plunge like an otter into the water and catch the fish and bring it out. There ~~was~~ no man there that can do that, but the women could do ~~that~~ it. The women will climb the gum-trees, 150 to 200 feet to the limbs, and bring down the opossums from the top of the tree for the family dinner. In Mexico, ^{the} a native woman is often as strong as her husband

and of course the great burdens of supporting the family fall on her. You may see a Mexican family moving, and you will see a donkey loaded down with the household goods, and if there are any of them left, the mother will carry them in a large pack perhaps weighing 150 pounds upon her head, or upon her shoulders, and one or two babies on top, while the father marches bravely on ahead to protect his live-stock and chattels. In the South, and in other tropical countries, the women do the larger part of the work. Among the savage tribes, the women do most of the work in cultivating the grain. Occasionally a man would gather coconuts, bananas or berries, but the women performed the agricultural work,--she planted, cut, husked, and carried on the agricultural operations, as well as assisting in building the house.--the women did the house-building; the men gathered the material and the women did the work. The women there, are naturally as strong as men, --why should they not be ~~as~~ strong?

The weakness of women that you find ^{only} in civilized lands, is the consequence of heredity, or long years' neglect--to physical neglect and the violation of physical laws. In certain countries not so thoroughly civilized as America, and some other countries where the people have not reached so high a state of perversion as have the people of these countries, you will find the same thing,--women are practically as strong as men. In Germany, the peasant women are almost as strong as the men, and they do most of the work. Going thro' Germany on the cars and looking out of the windows, you will see as many women in the fields at work, as men,--and sometimes you will see women more frequently at work in the fields than men, the women following the men in mowing, and mowing as wide a swath as the men. Two or three women would follow a man in the harvest-field, all having rades, and it was interesting to see the women swinging their heavy

cradles. The first time I visited Paris, some twenty years ago (I have not seen the spectacle since)), I was walking along a public street, and I saw a line of people digging a ditch and putting in a sewer-pipe, and at the head of this line was a woman, and she was swinging a big pickaxe, breaking up the ground for the men to come after her. My chaperon, a very intelligent man, told me that was a common thing; that they worked women as well as men. "How about her wages?" I asked. "She earns the same as the men,--she does the same amount of work as a man." "Why do they have her at the head of the line?" I asked. "Because she is so industrious that she sets a good example,--she keeps at her work." While in Southern Germany, some years ago, I was traveling through the country on the cars, and I saw a spectacle that I hope I shall never see again, but it shows you how women work in Germany. I saw a team pulling a plow. One member of the team was a cow, and the other member was a woman, and they were in harness--the woman had a strap over her shoulder, and the cow had a strap over her shoulder, and they were pulling the plow together. While in Paris, I saw a man driving a three-woman team. These women were drawing a cart which was loaded down with garbage and pickings from the street. Two of these women were well developed women,, and the other was a young woman about sixteen. But they all had harnesses on,--every one of them was bending her body and pulling that heavy load, and there was a man walking along behind to steady the cart, and to direct the team where to go--and he wasn't pushing the cart any either. When I was in Belgium some years ago,, I saw a woman pulling a market cart, and there was a dog working at it with her, and each of them had a strap over their shoulders. The woman was pulling heavily, and the dog was pulling as

hard as he could. I am sure that in many parts of Continental Europe the women do the larger share of the work. The large standing armies of Europe take ~~the~~ a large share of the men, so the women have to do the work, and so the amount of woman's work is trebly increased. There is not land enough for the German peasant to keep a beast of burden. He raises garden vegetables, greens, celery, spinach, which is used there in great quantities. He also raises carrots, potatoes, and many other kinds of garden vegetables, and perhaps some grass. These products are taken to market on the heads of his wife and daughters, for that is the only way of getting them to market--unless he carries them to market himself, and he could not do that--he is not strong enough to do it. These women are trained to carry burdens on their heads, and they are so trained, from the time they were very small. A man could by no means carry the load that one of these ^{German} women will carry on her head. You will sometimes see a ~~pregnant woman~~ German carry a wash-tub two thirds full of water on her head, that it would take two men to carry I saw two men lift a heavy book-case and put it on the head of one of these women, --she was a woman eighteen or twenty years of age. She first placed a little cushion on her head, and then the men put the book-case on her head, and away she went down street with it. It is a common thing to see one of these women carrying off a loaf of 120 pounds; that is a common load for a German woman to carry three or four miles to market, on her head. That is the weight for an ordinary German woman; she will carry a weight equal to her own weight on ~~head~~ her head to market, without taking it down once. You will see a young woman sixteen or nineteen years of age with a load of 100 pounds' weight on her head. In the "Black Country," in

in England, which I visited at one time, for the purpose of studying the habits of the people, in the region of Lye, about forty or fifty miles from Birmingham, out in the coal and iron country, I visited the district containing the iron works. Every house has its blacksmith's shop, and the women are blacksmiths as well as the men,--and they do just as much work as men. The little boys and girls become familiar with ~~the~~ blacksmith's tools,--they have little hammers, etc., and are familiar with these tools almost from the time they are born. Now in this district, the men have made complaint against the women,--that they work for less wages than the men. They held a great town-meeting in which they said that these women become so unsexed by working at the trades, working more hours than the men ~~day~~, and hence work at a lower price. One woman was making nails for camel's shoes, to be used in the deserts of Arabia, working fifteen hours a day at her forge. She looked strong and sturdy, and her children looked vigorous and healthy. I found that she could, in this manner, earn fifteen shillings a week, and on this, she had to support her whole family. She could not buy much beefsteak on that income. She could eat beans and bread; that was the diet of those people, and they were sturdy and ruddy and healthy. While there, I got acquainted with a leading physician, and I asked him what the principal line of his practice, and whether he had much gynecological practice. "Oh, no!" he said, "not much here." He said his chief occupation there was, obstetrics--"nothing but obstetrics," he said, "except now and then a case of measles or some other children's diseases." The whole family works, using the most simple tools. I found a woman working in the brick-yard,--an old woman, making the famous "fire-brick" which are shipped all over the world...The clay is first mixed with a machine, and then kneaded by hand. Think of kneading

all the brick made in those factories by hand, the same as kneading dough. Each woman who worked there sat at her platform kneading her masses of clay. A woman takes up one of these great masses of clay, and kneads it like dough, and tosses it over and kneads it again, and tosses it about, so that you would think it was cork, instead of wet, heavy clay. I stepped up to the table and took hold of one of the masses in order to lift it, but it didn't lift. I had to roll it to the edge of the table in order to get hold of it so that I could lift it. I then weighed it, and found that it weighed sixty pounds. That woman was a broad-shouldered, broad-chested woman. She told me that she came near being born in that brick-yard; that her mother worked up to the day that she was born; that in a week she came back with her child, and she had been there ever since. She had a little child sitting on the floor I noticed that it was a cold day, and saw the toes sticking out through the soles; the feet of the women were wet and cold; they were wet all day long, and yet they were not sick. I said, "Are you never sick?" "No," she answered, "We are never sick." I enquired of some of the women about their health, and I found that all of them were always well, and they looked well. They worked hard and continually, doing as much work as men, and were not sick,-- and the children were tough. I remember a little girl about fourteen,-- these women were making brick and laying the large wet bricks in forms, and there was a girl about fourteen, a rather slim looking girl, and she would catch up one of these trays of bricks and run off with it to the drying place, and then run back for more, and away she would go for another, and in this manner she worked twelve hours a day.

I saw a couple of boys about twelve years of age, and they were working at a big mass of wet clay, and they were gathering it up in their hands and throwing it against the wall and it would stick there, and I thought they must be at play, and they seemed to enjoy it. They would get a great handful of clay and throw it on the wall and it would spread out on the wall, and the mass of clay on the wall kept getting thicker and thicker until it got to be about so thick. Then one of the boys ran up and stuck his head ^{right} through the middle of the patch, and peeled off the wall and away he went with that great mass of clay around his neck. He went off to where the women were kneading clay, and they gathered it up in that way. After I had lifted one big ball of clay, I appreciated something of what the boy had lifted,--I got him to go with me to the scales and then I weighed the boy with the ball of clay on his head, and then I weighed him after he deposited the clay, and I found that that mass of clay weighed seventy pounds. So that boy was carrying off a load that weighed as much as himself. All those people were fine hard-looking people; they were living in a state much nearer the savage state, so far as civilization is concerned, than our civilized men and women ~~do today~~.

MEETING OF SAN. MEDICAL FACULTY, Oct. 26, 1902.

J.H. Kellogg, M.D., President.

J.F. Morse, Chairman pro tem.

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Hydriatic Treatment of Inflammatory Conditions .

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THE question of Inflammation is certainly a very practical one, and I understood that it was to be discussed to-night,--but I don't want to do all the talking .

There is no doubt that we have to deal with this question more frequently than any other, and there is no condition which hydrotherapy is so competent to master, as an inflammatory condition--an acute ~~inflammatory~~ condition. In chronic conditions, we have to wait a long time to see the results. But in acute conditions, especially acute inflammatory conditions, we can see results at once. But before we can really appreciate what hydrotherapy is capable of doing, I think we need to have a clear idea of what inflammation really is I have not been able to do much reading of a medical sort since our great fire, as I have been very busy. But inflammation is a very old thing in itself, and while there may be different theories about it, the facts must still remain the same.

Virchow has defined inflammation as being a disturbance of the vessels,--that the normal condition of inflammation is a change of the vessels. He attributed all the phenomena of disease to change of the vessels. *Cohnheim* ~~Kentine~~ took the position that a change in the cells, which Virchow considered a secondary matter, was the primary thing in the production of inflammation,--rather, I should say that Virchow took the position that a change in the cells was the primary thing, while *Cohnheim* ~~Kentine~~ took the position that a change in the vessels

was the primary thing in inflammation. But Metchnikoff has combined the two ideas, and maintains that the inflammatory process is one in which, while the change in the vessels is primary, a change in the cells is an essential part of the process. Roger gives a good definition of inflammation,--that it is the reaction which results against a pathogenic agent, *when brought in contact with the body* -- at the point of irritation, that this reaction is inflammation.... Suppose we have a cut, and an inflammation following the cut,--the first thing that would happen, would be a contraction of the bloodvessels as the result of the irritation of the vessel-walls themselves. The second effect is the slowing of the blood-current, the result of the reflex action of the vasomotor centers. The slowing of the blood-current in the formation of fibrin, and this fibrin then becomes a means of introducing a second class of viands--the fibrin fills in the gap between the wounded edges, and acts as a sort of leading string for leucocytes which are caused to leave the vessels because of the slowing of the flowing of the blood and the full veins, and the leucocytes feed upon the fibrin. So the fibrin sustains them, and also acts as a guide to lead them to a point where their work is needed, so the whole process is a protective one, and it is all of a reparative nature--the whole inflammatory process is a protective one.

Now, when poison is put upon the skin, as cantharides, etc., we see some of the phenomena following,--first, there will be a dilatation of the vessels, and then, migration of leucocytosis, and the pouring out of a large amount of serum. Now the purpose of this serum is to dilute the poison, and the migration of the white cells is to eat up and digest and carry away the fragments of cells which have been killed by the poison. The effect of poison is to dilate the vessels, and

to destroy some of the cells; leucocytes are poured out. And serum is poured out for the purpose of diluting the poisons, and the cells are brought in there for the purpose of digesting and carrying off the dead tissue-cells, so, as I said, the whole process is protective. If a poison were injected below the skin, we might have three results following the injection of the poison or microbes,--the effect might be entirely negatived, if the tissues were able to destroy the microbes; or, it might be a local inflammation or abscess.... Or the bacteria might be so virulent that they would produce the opposite effects from what ordinarily follows from the introduction of microbes, and there will be general infection, instead of the opposite, chemio-taxis--there will be a negative chemio-taxis, so that leucocytes would be repelled, and there will be no local effect. But, ordinarily there will be a local inflammation set up. The bacteria would form toxins, and these would attract the leucocytes, and they would remove the dead cells..... The connective tissue in the immediate vicinity ~~in the immediate vicinity~~, as well as others round about--those in contact with the poison would be killed, and those further off would be reduced to the embryonic state. These connective tissues would become motile again, and migratory, having power to move about again. The same thing happens to some of the blood-cells,--so the cells act in a protective way .

The leucocytes which are thrown out, some of them, have the power to repair. Some of them are for the purpose of destroying the bacillus. Others take part in the formation of new tissues. The same thing seems to be true in reference to some of the round-cells. Other changes take place with the muscles... They seem to take on a proliferative activity, and their function is sometimes increased.--this is especially the case with the glands, although it might be nothing but

mucus, the normal elements being missing, and the secretion of the glands ceases entirely...

This seems to be the ordinary process of inflammation. This process is protective. So, when we see an abscess or injury which results in inflammation ~~or infection~~, we should not be disturbed by it, for such inflammation scarcely ever extends beyond the abscess or injured part. It is only when the vitality of the body is very low that the inflammation, if a localized one,, extends beyond the abscess or injury. I learned from practical experience, a long time ago, that if I found a localized inflammation, and if, after two or three days I found it confined to the injured part, I would feel safe and gratified, because I felt as if there would be a wall of protection built up by the inflammation around the injured part. When I first found such a case, I was frightened, because I thought it might extend clear to the peritoneal cavity, but I found out afterwards that it was extremely rare that such an inflammation extended. If you find a localized inflammation, it is usually going to remain so. If the resistance of the body is sufficient to set up a local inflammatory process, there is certain to be a recovery, because nature has already shown that she has power to limit the ~~inflammation to the injured part~~ injury to that region, even though germs extend all over the body.

There seems to be a great difference in different parts of the body in reference to this resistance. There are certain parts of the body (the muscles) which seem to have great power of resistance. There are only a few muscles which are likely to have abscesses,--the deltoid-muscle, the sterno-cleido-mastoid, and the psoas muscle,--these are the principal abscess-muscles. I have noticed how infrequently abscess-

es formed in other muscles.

There are a few other parts of the body which are likely to take on inflammation. It is interesting to notice ~~that the lungs~~ in reference to the lungs, that they are not likely to take on any suppurative process unless they have been injured so that their resistance is lowered, for instance by some form of pneumonia. If the liver is invaded by streptococci, this process is likely to occur--the liver is likely to take on an inflammatory process, if streptococci get into it. Streptococci, when introduced into the portal vein are likely to get into the liver. If there is a suppurative inflammatory process set up, there will always be poison present. If it is mechanical, the direct causes may be mechanical, chemical or physical. You may have an inflammation set up by a puncture or a wound, ^{or} by the introduction of a foreign body ~~introduced~~ into the tissues.

Various substances are likely to set up inflammation, also various chemical substances. Turpentine is likely to set up an inflammation. Germs will produce suppuration.

We see an illustration of inflammation set up by a physical agent in the case of sunburn. The burning of the X-ray seems to be another illustration of the same thing --and yet, in the case of the X-ray, I am not ~~sure~~ that the X-ray is the direct cause of the burning or inflammation. I think there is a lowering of the vital resistance, and that the process which takes place is really gangrene (2) resulting from the invasion of the tissues by the germs of the skin,-- or streptococci, which ^{grow upon} ~~go from~~ the skin.

The process of inflammation is, I think, a very useful thing for us to study,--the exact process which takes place. First, we have a dilatation of the vessels. Then we have a diapedesis and an exu-

date, and we have changes in the cells.. Now suppose we look at these different things for a moment, and see what is the result of each process. We have, in the first place, dilatation of the vessels. This dilatation of the vessels gives rise to the heat and the pain, and the so-called congestion--there is nearly always redness. The part becomes inflamed. We notice, pretty soon, that there is a throbbing in the part, and that throbbing is due to the fact that there is ^{such} a dilatation of the vessels that the wave from the artery ^{which} passes into the smaller arteries, and so comes in contact with the sense of touch so we will very plainly feel the movement. When we place the tip of the finger on it, we can feel the throbbing of the radial artery. Now if this wave passes into the region of the skin of the injured part (?) ^{in contact with} coming to the tactile nerves of the part, there will be a pressure between the vessel and the skin, and so we will feel a throbbing. After a while, when the part becomes swollen and tense, the throbbing feeling disappears entirely, and the pain becomes a continuous pain,--there is less intense pain than before. Then there is embryonic (?) suppuration. That comes when the vessels are empty.

This dilatation of the vessels seems to be entirely protective, and that is a very important point from a hygienic standpoint -- to recognize the fact that the dilatation of the vessels which occurs in inflammatory processes is protective, and this process is important so you should not contend against it unnecessarily. This fact is well shown by an experiment by Professor Guillemot (?) that is his name or something of that sort. The experiment consisted in taking two rabbits and injecting their ears--in one, removing the superior cervical sympathetic ganglia. He afterwards injected one ear of each rabbit with streptococci, and the result was, a very rapid swelling of both

the injected ears of the rabbits, but it was found that there was a much more rapid swelling in the ear which had the sympathetic ganglia removed,--the swelling was so much more rapid that the ear of the animal that had been operated upon became enormously enlarged--very much more than the other ear--and the migration of leucocytes or cells into the swollen tissues was so much greater in that ear, that at the end of three or four hours, there was found forty times as many leucocytes in the ear of the rabbit that had been operated upon, as in the ear of the other rabbit. In other words, leucocytes were produced forty times as rapidly in the ear of the rabbit that had been operated upon as in the ear of the other rabbit. The same thing was found to be true when the ears of the rabbits were immersed in boiling water. The protective inflammation set up in that way, was much more rapid, the swelling increased more rapidly, and the leucocytes increased in far greater numbers in the case of the rabbit that had the cervical ganglia removed, than in the ear of the other rabbit. This is very instructive, because it shows the great importance of vessel dilatation.

Professor Filhene found that after he injected streptococci of equal weight and condition, over one ear into one ear of each of two rabbits, and then spread a rubber bag over the ear of one rabbit, and kept hot water flowing through the bag all the time, that the swelling grew much more rapidly in that ear, the leucocytes increased much more rapidly than in the other rabbit's ear, and that his recovery was much more rapid than that of the other rabbit. This shows that the swelling and leucocytosis is a protective process, and that anything that will dilate the vessels will facilitate recovery. This was certainly a very interesting experiment.

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A VOICE. Counter-irritation has a scientific foundation.

DR. KELLOGG: Yes. The dilatation of the vessels results in swelling, also in heat. The swelling is at first an increase in volume, but finally becomes a boggy swelling ^{with} and an accumulation of fluid resulting in oedema, or ascites in some cases. The old theory concerning this exudate was, that it was purely mechanical, and I supposed that that was so, until recent observations made by French investigators and others have shown that was not mechanical, -- that this exudate which occurs in connection with the swelling, was not simply a pouring out is not simply a mechanical pouring out of serum, but is a secretion that is due to reaction of the tissues against the toxins which have been formed by the action of the tissues against the toxins which have been formed by the germs, or which have been introduced. It is the toxin that develops this action. In case it is a mechanical irritation of some sort, then a toxin is formed by the destruction of cells. That is what produces reaction. If it is microbes which have been introduced, then toxins are formed by microbes, --- or we may separate the toxin from the microbe, and that produces the same effect. The reaction is, in every case, the result of the influence of toxin upon the tissues/....

Now the swelling is sometimes superficial. In superficial, ^{inflammation,} the swelling is apparent. In deep inflammation the swelling is also apparent upon the surface. We have this swelling in cases of pleurisy. We also see a swelling inside of the chest in oedema, and in cases of appendicitis. You will often find a boggy swelling and an oedema over the part that is the seat of the deep-seated

part that is the seat of the deep-seated inflammation. It is not necessary that the inflammation should be close to the surface, but in deep inflammation the overlying tissue is often boggy and shows evidence of localized inflammation.

As to the origin of the exudate : It is apparantly a secretion. I think it is evidently a secretion of the tissues. Studies of exudates said to be due to mechanical causes, as in cases of cirrhosis of the liver, and the exudates which result from inflammation, seem to show that they are exactly the same,--that their composition is so much alike that there could be no difference recognized. The fact that secretions vary is evidence that they ~~vary~~ are secretions, because they vary with the cells which make the secretions. Mechanical exudate is essentially the same, because the blood is the same... In a case of phlebitis, we know we will get a great inflammation from the swelling of a small nerve. ~~It has~~ ^{where there is no inflammation} It has always been difficult to account for the swelling in phlebitis, for we only get a swelling when there is inflammation... That shows that the swelling is due to toxins,--to microbic infection or to toxins, and not due to mechanical interference.

a case of

Now in ascites, it has been shown that the pouring out of serum into the abdominal cavity is due, not to the mechanical obstruction of the liver, but to the action of microbes invading the peritoneum through inflammation,--and the resistance of the peritoneum being lowered by the slowing of the blood, so that a large amount of CO_2^0 is brought in contact with ~~the~~ tissues and they become more or less asphyxiated; they lose their resisting power so that the germs come in contact with the peritoneum and cause this exudate to be thrown out .

Now the purpose of exudate is to dilute poisons. The exudate contains substances which neutralize the toxins to a considerable degree. So the exudate is favorable and beneficial. It is very interesting to see what takes place sometimes, in a case of a small collection of tubercles. Perhaps two or three tubercle spots will be collected into a mass in a case of pleurisy,--I think it is generally believed now, that all serous pleurisies are tubercular in origin--a small patch of tubercle spots collected on a pleura will cause two or three pints of exudate to be poured out; and when removed, the same thing occurs in ~~three or~~ a few hours. It is astonishing to see how rapid is this process. Even in cases of renal disease or Bright's disease is believed that the general anisoric (? Not understood) is due to the formation of skin-germs, and not due to any mechanical cause or to lowered heart tension, but is due to invasion of tissues by skin-germs, these germs being capable of producing oedema.

Diapedesis is equally interesting. The fact that ~~these cells~~ ~~are capable of~~ the debris of dead tissues is capable of attracting ^{the debris of dead tissue} the cells, is extremely interesting. The fact has been shown that diapedesis does not take place in the small arteries, but in the capillaries and small veins, for the reason that the blood is slow in passing through these capillaries so that the leucocytes are not swept off so rapidly there, but in the small arteries and small veins the movement of the blood is so rapid that if a leucocyte attempts to attach itself to the wall of the vessel, it is swept off by the force of the current.

It has also been shown that this activity depends upon the amount of oxygen present,--it is necessary that there should be an abundance of oxygen present--in other words, that the blood should be

well oxygenated in order for this process to take place .

Anything that slows the blood-current will diminish diapedesis. If the amount of oxygen is diminished so that the blood becomes blueish, then the diapedesis ceases. You see why the tissues become red—when the inflammatory process takes place, the first thing you notice is a reddening of the parts. That is due to a dilatation of the blood-vessels,--the blood passes through the vessels so rapidly that it contains a large amount of oxygen,--there has not been time for an interchange of gases so as to reduce the oxygen to the lowest degree. This is a condition that is favorable to the migration of the cell, and so encourages the process of diapedesis, and thus it is protective.. So an abundance of oxygen in the blood is both useful and necessary.

The pus formed in inflammation is composed of these white cells and round cells in the connective tissues, and ~~of~~ the fat-cells which have been transformed into the (?Not understood) debris of the tissues and the fibrin of the blood serum. This fibrin of the blood serum seems to have been secreted, and not simply poured into the tissues by mechanical obstruction. Some of the red cells slip through the openings sometimes, so there is sometimes red-cells in the secretions.

The rapidity with which these leucocytes are poured out, is something amazing. I don't believe we can ever appreciate that fact unless we have taken pains to make a calculation. A cubic millimeter contains such a vast number multitude of these cells that a single litre contains 125,000,000,000 of these pus-cells. And yet we may have produced more than a litre of pus ^{formed} in twenty-four hours. I have seen cases in which more than that amount of pus was formed in twenty-four hours.

It may be possible for two litres or more of pus to be formed in twenty-four hours. ~~If we remember that~~ The whole of the blood in the body only contains some thirty billions of leucocytes--white-cells--and a litre of pus contains one hundred and twenty five billions, ~~so~~ this rate ~~you see~~ there may be formed in four to eight hours, four times as many of these cells as the blood contains. Where do they come from? They are produced in the body as a means of aiding it in its fight against the invading microbes. We know that these leucocytes come from the spleen, the lymphatic glands, and the red marrow of the bones, ^(and other organs).. The red marrow of the bones in a normal condition, contains a large amount of fat. Just as soon as these toxins get into the circulation this fat is absorbed and leucocytes take their places,--that is, the multiplying cells take the place of the fat. That point interested me when I learned of it, because I was puzzled to know where there was room for all these cells,--the fat is absorbed and carried off, and the leucocytes and the newly-formed red-cells take their places and fill the spaces which had been occupied by the fat. ..

It is interesting to notice the rapidity with which this general reaction takes place in fever. We have finally a rise of temperature and a general lassitude, headache, loss of appetite, a general malaise and weakness, a loss of muscular power as the result of fever. Not only this, but we also have changes in the blood, and when there is local inflammation of considerable magnitude taking place, it is easy to trace the changes of blood taking place from day to day. I remember a case that we had in the surgical ward,--a lady who had a laparotomy performed

omy performed. A general infection occurred afterwards. She went on very well ~~afterwards~~ for four or five days, and then there was a chill. It was the case of Mrs. Keyser. We watched the blood from day to day, and it seemed as though the leucocytes nearly doubled,--and sometimes they did double in twenty-four hours. It went up to nearly ten times the normal amount. I have never seen the number any greater than six times the normal amount in medical literature, but this increased to (blackboard calculation) it was $13 \frac{1}{2}$ times the normal amount---- 451,000,000,000 of leucocytes that the person must have in his blood. So it was possible, in that case, to pour out a large amount of pus. The leucocytes are ready for the fight; so they might be poured out in great numbers in the inflammatory focus and may thus fight the battle for the body. The different tissues have rest from resistance, as I remarked in reference to the muscles, *while other parts are working* (2) ...The lungs seem to have great resistance against inflammation and against suppurative processes. Histological studies show that there are certain flattened glandular bodies (in the omentum?) which seem to have power to secrete a sort of variety of leucocytes which resist invading bodies. A small portion of the omentum seems to always find a place for adhesion at the lowest portion of the pelvis. It is extremely rare not to find a small portion of the omentum at this point, and it surrounds the focus of inflammation down there with these protecting cells. Whenever I encounter this arrangement of nature, I always think of the wonderful providence which has guided the omentum in this manner. So we find the appendix, instead of sticking straight out, curled underneath the caecum, so as to be out of harm's way. There seems to be. There seems to be something marvelous about this arrangement, but I have no means of explaining it, except that there is a divine intelligence guiding

it as well as the omentum. The omentum has no muscles,--how does it find its way down to the point where the inflammation is and bind itself about it ?

But cell-changes differ?. Sometimes, besides suppuration, there is likely to be changes taking place in the vicinity round about the inflammatory focus, and if the round cells take on a high degree of activity we have cicatricial tissue formed. After the inflammatory process is over, these cells fill up the gap, and form a cicatrix. This process may sometimes go too far, and nature does not always seem to exercise the best judgment in reference to these protective activities, for instance, making two or three pints of serum for one little tubercle, and in other ways there seems to be excessive activity in the protective process. Here is where the physician can show his knowledge of natural processes, and aid in controlling them. For instance, we may have the formation of a pseudo-membrane,--there seems to be two kinds of membranes, --the mucous membrane, and the pseudo-membrane which lies behind it. The pseudo-membrane is made up of fibrin which has been coagulated, ~~by the epithelial cells.~~ But this takes place only when the epithelium has been injured in some way, because, so long as the epithelium is intact, it has power to protect the fibrin from coagulation, just as the endothelium before it becomes changed prevents the blood from coagulating. In case of injury (of the epithelium?) a clot is formed, and in this germs grow. Then a process of inflammation is set up, the clot is broken up and swept onward. Then a larger clot is formed, another inflammation process is formed by which this clot is broken up and swept onward as before. Bye-and-bye ~~an in~~ a still larger clot is formed, , an inflammatory ^{focus} ~~foci~~ is formed and the same process is repeated, and finally we have a second membrane formed, with diphtheroid gangrene. This is formed in the mouth in little thin

sheets. The mucous membrane sloughs out and leaves a little excavation. This is not due to the formation of the (second ?) membrane at all,--it is dead cells. An infection has occurred and these cells have died and have simply suppurated and came away.

Then there is gangrene proper. In gangrene proper there seem to be cells that have died. There is a necro-biosis of cells, and a putrefaction taking place after they are dead. The same process takes place after the death of an animal--a cadaveric putrefaction; the same changes take place because of the cutting off of the blood-supply because of the change of a vessel, or because of a clot being formed, or from some other cause. Senile gangrene is a good example of this. It seems that the gangrene would not be actually complete unless there was also a putrefactive process taking place. So that if we know that gangrene is going to occur, we may prevent this putrefactive process by the use of antiseptics,-- and we might prevent it by preventing the invasion of germs which cause the death of the tissues...

There is still another inflammatory product,--the tubercle. And here we have a very interesting ^{variety of} inflammatory process. In ordinary inflammation we have a destructive process. But in the tubercle there is a constructive process. In this process the cells are stimulated so that the proliferation of the cells is more active. That is the first process which occurs,--proliferation is stimulated by the presence of a certain germ which forms a little nodule--the tubercle generally has a little microbe in its center. But there are other things ^{studying} in these tubercles besides microbes. When I was in Vienna nineteen ^{years ago}, Professor Koch had just brought out his theory of tuberculosis.

losis. There was a Professor Velasco down stairs who was studying this theory, and I was studying up stairs with Professor Stricker (?) who opposed Koch's theory, and was making all sorts of experiments to disprove Koch's theory. One of these experiments was, to inject the peritoneum of a rabbit with cinnabar. After some weeks an autopsy was made, and it was found that the peritoneum and the surface of the liver was all covered with typical tubercles, and when examined by the microscope, a little speck of cinnabar was found in the center of every one of them. This showed the production of tubercles by cinnabar, it was claimed, and thus disproved Koch's theory that tubercles could not be produced by a foreign body (?). The cinnabar had probably lowered the resistance of the tissues so that the germs of the intestinal canal had gained an entrance into these tissues and had a pernicious effect upon them, through a local inflammation.

Let us first notice what nature is trying to do for the cure of the inflammation: There are several things that nature undertakes to do. In the first place, nature seeks to furnish an increased blood-supply--to increase the flow of arterial blood into the inflamed part. This is curative, because it is the blood that heals. It is not the doctor that heals. It is no remedy that the doctor applies that heals,--it is the blood that heals. We see the importance of blood, with an abundant supply of oxygen by which germs are destroyed. We must have an abundant supply of arterial blood. We want to dilate the vessels, and we want to encourage diapedesis, and this is done by encouraging the oxygenation of the blood. And we want more leucocytes, so we must encourage the natural process by encouraging ~~aging leucocytes~~ ^{in the process of diapedesis} leucocytes.

aging leucocytes, because this is one of the things that nature produces as a curative agent. (2) Nature produces an enormous increase of blood-cells, so that is a hint for us to encourage the increase of blood-cells. So, in order to increase the blood-supply and encourage diapedesis, there must be an increase of blood-cells or leucocytes.

Now can we do this? Can we increase the blood-supply to a part. This is one of the great things that we need to do in inflammation,--to encourage general and local leucocytosis and diapedesis. I think we might add, that a little later on in the inflammatory process, when suppuration has occurred, and we want to encourage the final ending of the process by opening up, and a full discharge of the pus,--when we feel that this is necessary to be done, sometimes it seems to be a wise thing, although I don't think that is often the case, but sometimes it seems to be a wise thing to encourage the development of an abscess. We feel that there is a suppuration taking place, and we want to encourage it, so as to secure an outlet. We generally do that with a knife, but sometimes we are afraid of a knife, and feel that it is more dangerous to introduce a knife than it would be to let nature take care of the abscess. ~~If~~ Can any one think of such a case? If you had a case of mediastinal abscess, and had some hope that it would discharge upward through the clavicular region, you might give it that chance. I had such a case once, and I gave ^{it} such a chance, and the patient recovered, and I saw her a couple of years afterwards in Colorado. In that kind of case, we see what nature is trying to do. The pus contains ferments which are capable of digesting proteid substances,--capable of actually dissolving tissues. There is a ferment similar to trypsin contained in pus, and this ferment is capable of dissolving tissues, and so eating its way out.

Let us see what we can do to encourage this process? We

(through the dilation of the vessels ²) local encourage the supply of the blood to the part, and the diapedesis or leucocytosis, and general leucocytosis and the softening down of the tissues through the digestive action of the ferments

Of course we wish to relieve pain,----I think I should mention another indication, and that is, that sometimes in the inflammatory process, the intensity of the ~~pain~~ ^{process} is so great that we need to check it a little. Sometimes it seems to be deficient, and then we need to encourage it, and we know, by experiment, how to encourage it and how to discourage it.

Suppose we consider the blood-supply,--how can we encourage the blood-supply to a part? in case of inflammation? If it is superficial inflammation, or an inflammation of the skin, all we have to do, is to apply a warm bath to the part...Poultices of various sorts have been recommended for erysipelas. I remember when a cranberry poultice was recommended by an English man for such a case,--and I have done so myself--and in my next case I shall use a cranberry or alum or some similar poultice,--I shall put on an acid. It has been shown that pathogenic organisms which grow in erysipelas,--the streptococcus, I believe, is one--do not thrive well in acid. .. Cranberry acid is strong, so it would be a good thing to use, in order to development of germs.

We see that common sense leads people to do very wise things,--we may call it common sense, or it may be by accident. People by accident find out good things to do, and they keep on doing them, and their children do them, and so these good things to be done pass down from generation to generation. Some of these good things which we do have been done by our ancestors for thousands of years, and they have passed down from one generation to another till they have reached

us. The experience of the race is worth more than all the accumulated learning of the race for practical purposes ...

DR. OTIS: In erysipelas, ice is tolerated by the patient at a lower temperature than it is by germs.

DR. KELLOGG: Yes.

Q. Why not put on a vinegar compress?

A. That would be good. Vinegar lotions are sometimes used in these cases. If we make a hot application, it will bring a large amount of blood to the part, and assist nature in her combat with disease ...

How about cold applications? If we make cold applications and lower the temperature of the parts, we will contract the blood-vessels and thus diminish the blood-supply, and hinder, to some degree, the protective process--the inflammatory process will be hindered to some degree; but at the same time, we will hinder the growth of germs. The life of the germ seems to be limited (by cold?) and if we find that the inflammatory process is developing to such an extent that the tissues are likely to be damaged by large exudates, and disease is rapidly extending, it seems to be well to apply ice. At the same time, my experience shows that it is not best to apply ice continually. I did that once in a case of erysipelas--and only once. I supposed, in those days (twenty-five or six or seven years ago), that the inflammatory process was due to the presence of too much blood in the part. We did not know anything about germs then. Those were days of darkness in that respect. We never heard of streptococci. The only bacteria we knew about was the bacterium termo. We knew a little about certain microorganisms, but those were the only germs we knew about. I had a case of a girl of four years old. She had erysipelas

in the calf of the leg. I applied an ice-bag. I then had only one medical student, and had not time to notice the patient closely. One morning he reported unfavorably, and I examined the patient's leg. After taking off the ice-bag, I found the injured part as bright as the brightest scarlet,--it was a patch about half as big as my hand. It looked different from any human flesh that I ever saw. I then made hot applications, but finally all the injured part sloughed out. She outgrew it, but it left a bad scar. She is a strong, healthy woman now, twenty or thirty years of age. It was due to my ignorance that she had that sloughing. She was several weeks getting well. I gave considerable ^{thought} to that method of treatment and its results, because I didn't want to repeat it.

The next experience with this kind of case was with Gen. Morrow, then, Director General, but since, Surgeon General of the U.S. army; but he was then next to the Surgeon General in rank. His wife was a patient here, and he came here to visit her. While here, he had an attack of erysipelas which affected his scalp. This was a bad case. I applied cold compresses at about 60° in the early stage of the disease. I took them off once an hour. I made a short application.... I then returned to it the first twenty-four hours, and so on, until the disease no longer extended. Then I ceased the cold applications, and used fomentations every two or three hours, applying the heating compress between, once every half hour. He made an excellent recovery, and I found that that plan worked well, and I have followed it ever since.... Germs cannot grow in a temperature much below the ^{normal} temperature of the ~~body~~ skin. So we can prevent the development of germs by cooling down the tissues, while, at the same time, there is left enough to guide the tissues, so that the reparative process can go on. We must be care-

ful to place a layer of cloth between the ice-bag and the tissues, so they will not be chilled and damaged. The temperature of the skin need not be reduced below 80° . The vitality of the skin may be easily maintained at 80° , and even lower, but germs cannot grow at that temperature. So we must find the happy medium between the temperature that will prevent the growth of germs, and the temperature which will not prevent the operation of the reparative process.

We can carry this thing too far. The application of cold, as I found in another case, is an example of this: A lady had a felon on her finger, twenty-three or four years ^{ago}. I saw the felon was far advanced (?), but I didn't like to use a knife in those days, as I was very timid, and could not get my courage up enough to open up the felon. So I had the lady immerse her finger in ice-water, and keep it in ice-water several hours. She reported that this treatment gave complete relief, so I told her to continue keeping her finger in ice-water and she did so for four days, night and day, and the result was that the felon did not progress at all, -- it remained in statu quo. But she came back and said that she could not keep her finger in ice-water all the rest of her life, and must have something else done. So I had the finger taken out of the ice-water and tried hot applications for a day or two, and the felon kept on its regular course. Then it got quite bad and I opened it up, and found the end of the bone was carious. The disease had been held in check by the resistance of the tissues; but they had become refrigerated to such a degree that the germs had overcome the resistance and had infected the bone. So I had a great deal worse case than I would have had if I had operated with a knife. I have never treated such cases in that way since.

In combating these inflammatory processes with cold, it seems to me that we should study the nature of the process and see whether the inflammatory reaction needs to be encouraged or needs to be checked. Suppose it is a pelvic inflammation,--an inflammation of the fallopian tubes, or the ovary: There we may have much mischief from an extensive inflammatory exudate, and so we want to lessen the intensity of the process somewhat. The peritoneum has great resisting power, and great healing power, if you will give it time enough. Now we want to check the rapid advance--the rapid development--of the inflammatory reaction, and so we apply ice-bags to the outside. These show that they accomplish what we desire of them by the fact that they lessen pain. The patient would mention that the pain was relieved shortly after the ice-bags were applied. Perhaps at first the pain is increased---

A LADY: It always increases pain during the first five minutes.

ANOTHER LADY: I have had it increase, and have had to apply it again.

DR. KELLOGG: This is not so likely to occur if hot packs are applied to the legs first,--and I have applied heat at the same time

What the ice-bag does first, is to act as a stimulus; it excites the nerves and thus increases the pain; but after the bag has been applied for some time, a reflex action sets up the same process within, so the blood-vessels of the inflamed part, and thus the swelling and the fulness of the parts is diminished to some degree, and then the nerves are no longer pressed upon by the blood-vessels. This results in ^{the} lessening of the inflammatory reaction. Now I don't see how there is anything curative in an ice-bag,--I have never been able to see

how there is anything curative in an ice-bag; because it is not a congestion that we are fighting. It is the germs, and the morbid process that they are setting up, that we are fighting. But the ice-bag controls the vessels to such a degree that they do not become excessively dilated so that there is a stagnation of the part. The cold exercises a tonic effect upon the blood-vessels, and maintains the rhythmic movement of the small vessels, or the activity of the peripheral heart, so called; we know that cold does that. If we take the cold bag off once in twenty or thirty minutes, and allow a complete reaction to take place. We have a complete filling of the vessels, and an influx of a large quantity of leucocytes. And if we apply a fomentation, that scares away these leucocytes... There comes in a great flow of blood which washes away the toxins, and supplies a large number of new leucocytes, and thus aids the body in its defensive work.

Is there anything more that we can do? We can encourage diapedesis by encouraging the movement of the blood through the parts. We have to control the dilatation of the vessels. We have to lessen the inflammatory process by the application of ice. Now by the application of heat to the surface, and especially by alternate applications of heat and cold, we may alternately contract and dilate the vessels, so we can in this manner pump the blood through the part. When there is a dilatation of vessels, fresh blood flows in, so we will bring in fresh blood and oxygen, and in this way we will oxygenate the tissues, bring in leucocytes and pump fresh blood through the part, and thus we encourage local leucocytosis.

Local leucocytosis is especially aided by the heating process which dilates the vessels, and at the same time stimulate the rhythmic movements of the small vessels. The Peripheral heart is

stimulated by these applications. A prolonged application does not do this; it produces venous stasis, and while the number of leucocytes is increased in the parts where the venous stasis is produced, the leucocytes are not active, they become active because of ^{the} accumulation of CO₂. So, when we want to encourage useful leucocytosis, we use the heating compress instead of the hot pack. That is better than a hot poultice, because the heating compress is renewed from hour to hour, or as soon as it becomes thoroughly warm, because in that case, superheating would occur, and we get the effect of a fomentation. So we remove it as soon as it is thoroughly warm, and put on a fresh compress. . . . We get a tonic application by a cold compress, and thus we have stimulation of the blood-vessels, -- the ~~arterial~~ ^{arterial} blood flowing in, instead of the stagnation which usually comes from superheating. Superheating comes from the relaxation of the vessels, whereas a cold application followed by a gradual warming up, maintains arterial movement, and thus we get a leucocytosis that is useful.

A Hot application followed by a cold increases the number of leucocytes in the circulation, and whether it is simply by ~~closing~~ squeezing the leucocytes out of the internal viscera, or whether the spleen and the lymphatic glands and the bone marrow are stimulated to form a large number of leucocytes, is a thing that I don't know that we can say exactly about, and naturally the theory is, that it is due to the squeezing out of leucocytes from this vascular viscera.

Shall we consider how many leucocytes can be manufactured in twenty-four hours. . . . It may be possible that there is an increased formation of leucocytes, as well as stimulating them and setting them free. (Blackboard calculation.) We find 7000 leucocytes to the millimeter in half an hour. Now if that could occur in half an hour's time, we can readily see that a hot-bath followed by a cold bath, you can readily see that a hot-bath followed by a cold bath might be extreme

might be extremely useful by increasing leucocytosis, and thus encouraging the system in its battle with the invading enemy.

A fomentation over the abdomen followed by a short cold application will produce local leucocytosis. A fomentation alone has the effect to increase, in a large degree, the number of red-cells,--the amount of blood in the part may be nearly doubled. Here is one point which I think has been overlooked in the books, and it seems to be of a good deal of interest,--for instance, we make a fomentation to a part (I think I have mentioned this in Hydrotherapy, but it has not been mentioned anywhere else, that I know of) we will take a surface of the arm,--now by fomentation you may encourage the movement of blood in the skin to more than double the ordinary amount. If we examine this blood, we will find that the number of leucocytes is smaller,--perhaps it will be only 5,500 instead of 6,000 leucocytes. The number ^{of leucocytes in the body} may be reduced, perhaps, ~~to~~ ten per cent.. But, at the same time, the total amount of blood in the part is twice what it was before,--the actual number of leucocytes here is 10,800, as compared with 6,000 before. So the fomentation, whereas it has reduced the actual proportion of leucocytes in the blood, has increased the number at the point of local inflammation (2) Having dilated the blood-vessels, it will slow the movement of blood in the veins, and thus encourage diapedesis. So the hot application is of the greatest value in combating localized inflammation. We use the cold along with the heat simply for the purpose of controlling and modifying the process. In applying heat, in inflammation, we find that it lessens the dilatation of the vessels, and so lessens pain, and prevents over-distension of the vessels and the injury which might result therefrom.

I ought to mention one thing more,--and that is the import-

ance of giving the patient water. An Italian investigator has made a very interesting observation: He cauterized the eyes of two rabbits. He then injected into the veins of one rabbit a large quantity of saline solution, and the rabbit who had had no saline solution injected,--his eye had no appearance of inflammatory reaction; there was no scar,--it was repaired immediately, whereas, in the eye of the other rabbit, a white spot immediately occurred. In the first rabbit, there was an enormous diuresis..... When I was doing a lot of work in injecting rabbits (which I don't do now, because I think it is wicked; I inject the rabbit with pure water, because it broke up the red cells)... In the case in which the saline solution was added, an enormous diuresis took place, and that rabbit got well without any sign of inflammatory reaction. That is the reason they inject a saline solution into the peritoneal cavity in certain cases, where there is a good reason for using large enemas. After laparotomies, when we have fear of peritonitis, it has been my custom, for a number of years, to inject a large enema as soon as the patient becomes unconscious after going to bed,--or the next morning, if it is not done at night. I think it is best to place the intestines in their proper positions, and to furnish a proper quantity of fluid for a proper diuresis.

What does that do? It carries out of the blood the toxins, and has the effect to diminish the resistance of the body. We know what happens when one takes bromine or iodine,--the body is brought into a state of lowered resistance; It produces an eruption. It excites the action of streptococci on the skin--they get into the sebaceous glands which have lost their resisting power so that a local reaction is set up. Germs are able to grow with sufficient rapidity to produce toxins which produce a local reaction, and then the body rallies,

and there is a circumscribed abscess formed, and that circumscribed abscess prevents the general invasion of any other body.

Now these germs upon the skin invade the body rapidly when there is nothing to oppose them. Observation has shown that ~~even~~ within twenty-four hours after death the germs of the skin have penetrated the deepest portion of the tissues, and there is nothing but the resistance of the tissues that limits that penetration, and because of this falling down into the glands, a local inflammation takes place, forming acne These cases of acne are cured easily by the use of antiseptic tablets or some other ~~antiseptic~~ similar antiseptic. Charcoal tablets have cured a great many people here, of acne, and I have received many letters from individuals, saying that they have been cured of acne by the use of charcoal tablets. They prevent putrefactive processes in the intestines, or lessen them enough to give the system a chance to rally.

Here is a person whose boy has a large abscess, or there are a large number of germs which are developing in the peritoneal cavity. If we can lessen the toxins or encourage their rapid elimination, we will by that means raise the resistance of the body as a whole and aid recovery. I suppose the reason why we see sores in fever, or germs producing sores about the mouth, --I had such a case which was infectious, the sores occurring at the time of the fever--why was that? It was because the alkalinity of the blood had diminished through the action of the toxins in the blood. This causes lowered vital resistance; that permitted the germs to break in.. Here we have an explanation of psoriasis, eczema and dandruff, and of a great variety of other skin disorders--also inflammation of the eye. For the anterior chamber of the eye has 8,000 times less resistance than the subcuta-

neous tissues, because of its low vascularity. There are no blood vessels in the cornea, and it has, consequently, very little resisting power, and the power of the antechamber of the eye to resist the development of germs, is 8,000 times less than that of the subcutaneous tissues. When I was in Koch's laboratory several years ago, he had several rabbits which he was experimenting upon, and he used the eye for his observations, injecting tubercle bacilli into the anterior chamber of the eye, where the resisting power was ~~low~~ so low that very minute infections were found sufficient to form an abscess (?). Ordinarily it requires about 50,000,000 germs to make one abscess, because the tissues have such wonderful capacity for destroying them. A single germ won't make an abscess, as a single man can't make an army

Water drinking and large enemas are important in all serious local inflammations. It is highly important also, to encourage intestinal antiseptics by a pure diet. I became satisfied of that years ago, and I established a rule that I would not perform an operation upon any patient unless he had been living at least one or two weeks before the operation, upon a strictly aseptic dietary, so as to encourage antiseptics.