GENERAL DISEASES.

Nurses' Post-Graduate.

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

January 5, 1904.

No person ever gets sick until after he has been ill for some time. A person never gets any disease until after he has been some time out of health. A person with a good supply of health, brimful of health, can not get sick; he does not get sick. People never get sick until after they have been ill for some time, until after they have got out of health. You ask a person how long he has been ill. "Well, I have not been exactly sick for more than a few weeks, but I have been under the weather for several months. I have not been sick, but have been under the weather." People get under the weather first, then they get sick afterwards. Is not that so? Is not that your observation. You have met that have you not? People say they have been a little bit out of health, under the weather, sort of running down. That is always true. Here is a man who gets smallpox; he seems to be perfectly well. I am not certain but what a healthy man might catch small pox, but nobody is well at the present time. We have all inherited certain weaknesses which make us subject to certain diseases. We can all catch smallpox excepting those who are immune. A person who is perfectly well, perfectly sound and well, if he had smallpox would have it so very light he would not mind it much.

Everybody gets sick by first getting under the weather a little. The thing that is necessary for every sick person is

is to get him out from under the weather, isn't it? If you can get him out from under the weather, if you can reinforce his supply of health, he would get well no matter what was the matter with him, wouldn't he? No matter what is the matter with a man, if we can give him health enough, he will get well, because health is the antidote of disease, and a man never gets sick until he first gets out of health.

Here is a person who has typhoid fever; how did he get it? He swallowed some typhoid fever germs, they passed through the stomach down into the small intestine, and they grew and grew and multiplied until they got to be millions and millions and millions of them; they penetrate the intestinal wall; they get into the mesenteric glands and swell up and make poisons, and they diffuse all over the body, and they make the fever. These typhoid fever germs have been working there a week or ten days or more before he begins to show symptoms of the fever. There is a period of incubation; all these infectious diseases have a period of incubation, and during that period germs are growing, multiplying, and getting ready,-- just exactly as it is with bread. Put bread away in a warm place, and how long is it before it begins to rise? How long? Take some pressed yeast, stir it up with som flour and water, put it away, would it begin to rise right away? If it was all ready to rise, it began to rise right away, but if pressed yeast, it would not rise right away. How long? Two or three hours, you remember, before it beginsto rise. Suppose you take some ordinary flour and water and a little salt, can you raise bread that way? Stir that up with water, put that away, and how long would it be before that would begin to rise? It de-

ponds upon how warm it is. It takes from four to six hours. That is the period of incubation, you see. Those germs are beginning to grow and multiply, and they have to multiply a whole lot before they get numerous enough to make gas enough to lift that bread up.

It is exactly so in the body. The body gets infected with germs; these germs grow and multiply, and by and by they increase in such numbers that they produce such bodies of poison that the body can not eliminate the poison fast enough, so it accumulates in the body; then there is a rise of temperature , and then the patient begins to feel sick.

What is true of this ~~pneumonia~~ fever is true of all chronic diseases--just the same thing. In typhoid fever now: the typhoid germs are taken into the stomach in the water, passed down into the intestines, begin to grow, and in the course of ten days or two weeks we have a fever. What condition is necessary before such a thing as that can happen? The vitality is lowered, of course, but there is some other particular thing. Can you tell?--Lack of gastric juice. If the stomach has plenty of good, healthy gastric juice, the typhoid fever germs can not get through, because the gastric juice can digest typhoid fever germs just as well as potatoes. Why not? Typhoid fever germs are vegetable. If you have got gastric juice enough to digest potatoes, you can digest typhoid fever germs too. So a man who has got a good healthy stomach can not get typhoid fever; but a man who has not got a good healthy stomach, can get it. The man with the healthy stomach can not get typhoid fever unless he takes it on an empty stomach. If the stomach is empty, there is no gastric juice there. Have you

ever heard of people taking disease on an empty stomach? People are more likely to take disease on an empty stomach. A man asked me some time ago by putting a question in the question-box, Is it a good thing for a man to take a walk on an empty stomach? No, sir! That is a very poor place to walk. With an empty stomach, when the stomach is empty, one is more likely to take disease than he is if the stomach is full, because when the stomach in first takes food, there is gastric juice there, and the gastric juice can digest the germs along with the food. It is worth while to know that.

Never go into a sick room where you have an infectious disease hungry or sleepy, because your resistence is lowered and you are more likely to catch the disease when you are hungry, or sleepy, tired, and worn out. When you are hungry or sleepy you have not as many blood cells as you ought to have; consequently your resisting powers are deficient, because you depend upon the white cells for that. When a person has got a slow stomach, got hypopepsia so he never has much gastric juice, he is likely to get typhoid fever. If he takes water that has got barnyard drainage in it, he gets cholera morbus, or some kind of bowel trouble; he gets cholera infantum, if he is a baby, because the water has barnyard germs. If a person has good sound digestion, he is not likely to have typhoid fever, is he? A person who has good, sound thoroughly healthy blood is not nearly so likely to get malarial fever. Unless the blood is strong, vigorous, healthy, full of blood cells, the stomach can not take those germs up. If the blood cells are present in such quantities as to destroy the germs, eat them up, then the patient is less likely to suffer, less likely to contract disease.

If a patient is well he is not going to get sick. He gets ill first, under the weather, then he gets sick. Then all sick people need one thing. All classes of sick people need one thig and that thing is reinvigoration of their system; invigoration of the nerves, of the heart, invigoration of the circulation. They need to have the nerve tone increased, need the increased tonic effect somebody spoke about; need to have the circulation of the blood increased, need to have the whole system brought into a higher state.

There is another principle I want to get before you, that is a very important thing, and that is the healing power that is within the body. It is not in the nurse, in the medicine, the treatment, or in the doctor; the healing power is in the body. What is this healing power working in the body? It is the divine life. It is the divine life, isn't it? It seems to me that God's life is a part of him; it seems that God's Spirit must be a part of ~~him~~ himself. Is not man's life a part of him? Can you think of a man's life being separated from him? Is it possible to think of a man's life, or the life of a tree as being separated from that tree? Well, God's life is a part of him. God's life is in man. That is why we see creating power going on, creating power operating in man because the life of God is there. This life of God is an intelligent life. Read Sister White's book "Education", the chapter "God in Nature"--it is very hard to understand how God can be in nature without being in the things of nature, isn't it? It is very hard to see how it is possible that God can be in nature unless he is in the objects of nature. How can God be in nature in a general way without being in

nature in a particular way?

We know that God's life is in us. That life is a creating life, is an intelligent life, is a working life. God's life is in man, and it would seem that God's life is a part of him; so God is where his life is. I said the atmosphere is in this room. I do not mean by that that all the atmosphere in the world is in this room. I mean that only part of the atmosphere is here. So when we say that God is in man, he is not all there, and he is not all in the tree. When we say God is in the tree, we do not mean that he is all there. That is so in our bodies. Healing power is in our bodies, and this healing power is the divine life we live; and I like to say, God in us, but we won't say that, because people misunderstand us. I met a man some time ago, quite a distinguished man, a man high up in denominational circles at least, and he said to me, You teach in "Living Temple" that every tree has got a little god in it, and every flower has got a little god in it, and every man has got a god in him,--a little god in everything. I did not know how he should get that idea, so we have to be careful how we use that expression, because when I say God is in a man, they think I mean inside of that man. They have not got that conception that we have; they think we mean inside of another man. When we speak of God in a tree, they think of God inside of that tree; that is what they think that we mean; so, as I said, we have to be careful about using expressions of that sort; so we say the life of God is in the man; the life of God is in the tree. It means the same to me exactly. If that expression is tolerated we will use that, because we do not want to oppose the progress of truth

by being stubborn in our forms of expression. That would be useless, wouldn't it? We can accommodate ourselves to anybody's understanding. If they understand that thing better, let us use that phrase. The thing we want is the truth, so we can afford to be flexible.

This life that is in man is the healing power in man, and without this life there can be no healing take place. There can be no such thing as healing without the operation of this healing power which is in the man, this life which is in the man. Do you all see that and understand that? How do you know that? Put a fomentation on a dead man, and it will not do any good. Put a fomentation on the roots of a treeevery day and keep it on there twenty-four hours, and it will have the same effect upon that tree as it does upon a man. It will dilate the vessels of the tree and increase the movement of sap in the tree, and increase the rate of growth in that tree. Gardeners water plants with warm water when they want to hasten their growth. Farmers sometimes put their corn and beans in warm water to get them started before they plant them in the ground.

This truth is one of vital importance,--that healing power is in the individual, and not in the things we apply. We simply have to make such applications to patients who are sick as will encourage the operation of, and cooperate with, and will assist this healing power that is in the patient. Do you see that? I am afraid you do not all see that. This healing power in man is the active principle; that is the healing power, the thing that heals. All the nurse can do, or the doctor can do is to cooperate with this healing power, and to

put the patient in such conditions as will help this healing power.

Here is a great thing here that I am going to show ya We hear big talk somtimes about moving the arm of God, don't we? I am going to show you how to do it. People who use that expression may use it in a purely figurative way. In an abstract way, it does not mean much, but I am going to show you that that is an actual thing, that God has put in man a part of the creating, healing power of God. Think of it as you have it by means of the great principles God has put in our hands. This healing power in the body is most actively manifested in the blood. It is in the blood that this healing power is most actively manifested; so an eminent German physician a good many years ago made this very forcible statement which struck me with great power when I first ran across it. "It is the blood that heals." It is the blood that heals. Blood heals. Just remember that thing. The healing power is in the body, and that healing power is most actively manifested in the blood, for the blood is the thing that heals in the body. Does the Bible give us anything to warrant that statement? "The life is in the blood." The Bible tells us the life is in the blood. Now you see how it is that the healing power is in the blood, don't you It is because the life is in the blood. Let the blood out of an animal, and the animal is dead. A man tried that experiment out west here some time ago,--took a dog, bled him to death. He had notther dog there all ready, and just as the first dog died, and his heart ceased to beat, he turned into his veins the blood from this other dog, let the other dog's heart pump his blood right into this dead dog, and the result was that the second dog lay down dead, and the dog that died first was resur-

rected. The dog was soon alive, and standing on its feet barking lustily. When his blood was taken away from him ~~was~~ him he was a dead dog because his blood was taken away, but when live blodd was put into him he came back to life again. That dog was perfectly complete; all he needed was blood, and when the blood was put back into the body, he lived again; and the other dog died. Well now, the blood, you see, has wonderful power in it. What is true of the whole dog is true of part of the dog; living blood coming into a part that is weak or feeble or evendead, that part may be healed. Now this is so much for an introduction.

The next time I see you I am going to tell you how to deal with fevers--different kinds of fevers. We will consider different ways in which we can control the movement of the blood. You might study it up in "Hydrotherapy" between now and then and get it in mind, and then we wont have to take so much time about it. The one most important thing in the treatment of disease is to know how to control the blood supply.

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GENERAL DISEASES

Nurses' Post-Graduate.
Lecture by J. H. Hollon, M. D.,
January 6, 1904.

There are thousands of diseases, and these thousands of diseases can be brought together into a few classes. I do not intend to trouble you with a whole lot of unnecessary technique, but I want you to get a grasp of the great mass of things you have to deal with when you go out to take charge of treatment rooms or something of that kind.

This afternoon I propose to talk about fevers. How many different kinds of fevers are there? Can anybody tell how many different kinds of fevers there are? There are three different kinds. First there are the so-called essential fevers, that is those fevers due to general infection,--general fevers; general infectious fevers such as typhoid fever, small pox, scarlet fever, measles, and so on. These are general infectious fevers in which the whole body is involved in the fever.

Second there are fevers that are due to local inflammation somewhere. Rheumatism is one of this class. If a person should get gastritis, he would have a general fever, would not he? A person who has a pelvic abscess had a general fever. Inflammation of the bowels would be a general fever. Inflammation of the lungs, or pleurisy would have a general fever in connection with it,--fever accompanying a local inflammation.

Then the third class of fevers consists of what we

might call chronic fevers.

Three classes of fevers:

1. Acute infectious fevers,--acute infectious diseases.

2. Local inflammations.

3. Chronic fevers.

Of these different classes, how many general infectious fevers are there? Small pox, typhoid fever, typhus fever, certain kinds of malarial fevers, measles, whooping cough, scarlet fever, yellow fever, ague.

The second class,--local inflammation accompanied by fever outside of the infectious: Scarlet fever, diphtheria, are first infectious; afterwards become general fever. Some are mixed in a way. How many fevers can you think of due to local inflammation? Gastritis is one--inflammation of the stomach; inflammation of the liver, inflammation of the bowels, inflammation of the kidney, pelvic abscess, inflammation of a bone, pleurisy, pneumonia, tonsilitis, boil, laryngitis, lumbago may be accompanied by fever. Can you think of any others?--Bronchitis, bronchial pneumonia, appendicitis. These are all local inflammations.

Chronic fevers: Chronic tuberculosis, tuberculosis of the joint, or hip joint disease, tuberculosis of the skin--but that is not accompanied by fever; tuberculosis of the bowels, mesenteric tuberculosis, tuberculosis of the glands, of the lymphatic glands. Do you think of any other chronic fever? Sometimes jaundice is connected with chronic fever--a chronic catarrhal condition of the liver, jaundice with fever. I have a patient who has chronic jaundice, with attacks of

chills and fever all the while--has chronic fever,- Suppurating joints, chronic rheumatism. A slight fever even accompanies goitre. The patient has large eyes and a large throat. Do you think of any other chronic fevers. These are sufficient illustrations of the different kinds of fevers.

These three different kinds of fevers require treatment in different ways, but there is practically one method for these different classes. There are some general methods that apply to all. In the first place, a patient suffering from general fever, typhoid fever, small pox, and other diseases which are accompanied by a high temperature--the treatment for fever is one of the things we have to give special attention to. If we can subdue the fever by the proper method, we will control the disease; we can not cure the disease. Did you ever hear of anybody being cured of typhoid fever by treatment? No treatment will cure that, or measles. The patient has to go through the disease, but there are some general methods adapted to them all. In the first place, there is a general method for reducing temperature that is applicable to all these cases. I want to call attention to the best and safest things to be done. How shall we reduce the temperature of a patient who has a general fever? What are we going to do for the patient? What is the best thing? How is the hot sponge bath? The wet sheet pack? How do you give a wet sheet pack? Some one says wring the sheet out of water at 70°, apply the pack wrap the patient up in the blanket, and change the pack in ten, or fifteen, or twenty minutes. How many times should it be changed? Keep on changing until the temperature is reduced. That is the way. What kind of pack do we call that?--Cooling pack. The wet sheet pack, in my

opinion, is the best of all means for reducing temperature. The hot sponge does not compare with the wet sheet pack.

What is necessary to reduce the temperature of a fever patient? The first thing of all that is necessary is to keep the blood in the skin. That is the most important thing of all, because if you keep the blood in the patient's skin, the patient will cool off by himself, because the air is colder than the patient, and the bedclothes are colder than the patient; so if you keep the blood in the skin, the patient will be cooling off all the while. The essential thing is to keep the blood in the skin. Whenever you have got a fever patient with a cold skin, you may just be certain that that patient will have a high temperature, and you could never get the temperature down in the world until you get the skin warm, because the blood is heated inside. The body's forces are inside, in the liver and other internal parts,--that is where the blood is heated. The blood that comes out of the liver has the hottest temperature of the body. The temperature of the blood when it leaves the liver is as high as 106° or 107° in normal people. It has been through the bowels, through the stomach and other internal organs, and has passed the second time through the capillaries of the liver, and that gives it a second heating. It is super-heated blood. The blood does not get sufficiently cooled in the vessels; it must come to the surface of the body, to the skin, to be cooled. If you should put a patient into a bath of just the temperature of the body, would the temperature rise? Suppose the temperature is 100°. Will the temperature of that patient rise? If it does not allow the body heat to escape, the heat will accumulate.

Suppose we have a candle here for instance. And we have a tin box here, and put it over the candle. The heat of the candle is just enough to keep it warm.Cover it over with canvas, the heat would not escape, and so it would get warmer. If you put some mittens on your hands, do the mittens keep your hands warm?

Now the blood comes to the skin, warms,the skin, and it itself is cooled off by the contact with the air. Put a patient in a bath at 100°, and how fast would the patient warm up? There are seven heat units in a pound. How many heat units will a person who weighs 140 pounds accumulate if you put him in a warm bath of 100°? The heat unit is the amount of heat required to raise a pound of water one degree. One heat unit will raise a pound of water, or a pound of the human body, which is practically the same as water, one degree. How many heat units will be made in ten minutes in the body which makes ten in one minute?--70. In 20 minutes, how many?--140; in forty minutes, there would be 280. Then this person if he has been in a bath at 100° for ten minutes has made 70 heat units. Did he lose any heat in the bath. He weighs 140 pounds; how many heat units will you have for each pound that he weighs, after he has been in a bath at 100° for ten minutes? How many heat units will he have in each pound? One-half of one heat unit to each pound. If you have seventy heat units to 140 pounds, you will have one half a heat unit to each pound. So the temperature of each pound is raised half a degree. How many degrees would the whole body be raised? One-half a degree. That is plain enough. Get these ideas clearly fixed in your mind.

Suppose we should keep the person in twenty minutes, how much would his temperature be raised? One degree. If

how much would his temperature be raised? One degree. If he remains in the bath forty minutes, or until he has made 200 heat units, his temperature would be raised two degrees. Put a healthy person, a person who is all right, into a bath of his own temperature, just the temperature of his own body, and the temperature goes steadily up. In five minutes it would raise one-fourth of a degree; in ten minutes, one-half a degree; in twenty minutes, a whole degree, and in forty minutes two degrees. In the case of a person who is sick, and has a fever, his temperature is affected much more easily than that of a person who is well. Suppose the bath has a temperature of 105°, then you see, the bath would communicate heat to the body, would it not? It not only would fail to extract heat from the body, but would warm the body so the temperature would rise more rapidly. It would be the same thing in a hot blanket pack, wouldn't it? Suppose the bath is colder than the body. Then the body would lose heat, wouldn't it?

Wring a sheet out of water at 60°. How much water will you have left in a sheet when you wring it out? How much more does a wet sheet weigh than a dry sheet? Don't you know that? Suppose it holds two pints; a pint is a pound. I am glad you know that. If there are two pounds of water in a wet sheet, and the temperature of that water is 60°, and the temperature of the patient is 105°, what is the difference between the temperature of the water and the temperature of the patient? 45° difference. If there are two pounds of that water, and the sheet is wrapped around the patient, and the sheet is raised to the temperature of the patient, how many heat units would the water take out of the patient? Remember that one heat

unit is the amount of heat required to raise one pound of water one degree. One heat unit is the amount of heat required to raise a pound of water one degree. If I have heat enough to raise a pound of water 45°, how many heat units will that be? How much will be required to raise two pounds of water 45°? 90 heat units. Then if the sheet is warmed up to the temperature of the body, how many heat units will be taken out of that patient? How many heat units will a wet sheet take out of the patient, the water in the sheet being 60°? How many understand that? Raising the temperature of a pound of water 45° will absorb 45 heat units. Two pounds of water will take 90 heat units. Here is the patient; we will say the patient weighs 90 pounds. That patient has taken a pack in such a way that 90 heat units have been taken out of the patient. This patient's temperature was 105°. How many heat units will each pound of that patient furnish if 90 heat units have been absorbed? If 90 heat units have been taken out of the patient, how many heat units will be taken out of each pound of the patient? One heat unit out of each pound. If that patient's temperature was 105°, it would be 104° after the pack. But it takes a little while for this patient to cool off. It takes a little while for the sheet to absorb the water. It takes five, or eight, or ten minutes for the sheet to warm up. If it has taken ten minutes, how many heat units would it make? The body makes seven heat unites in a minute, or 70 in ten minutes. The body has made 70 heat unites in that time, so we have only got ahead twenty heat units. But it may be the body is making heat two or three times as fast as that. It may be making twenty heat units in a minute instead of seven, so we have to apply the pack again, and keep applying it until we tire the body out. That is why you have to keep

changing the pack, why one pack is not sufficient. I want you to see the foundationwe have for this philosophy, so you can see the reason why for things. Then it is easier to remember. Give your patient a cooling pack, and in just a few minutes it will be as warm as the body. Then apply another cooling pack. The second cooling pack does not get warm so soon as the first one did, and that proves that we are getting control a little; and the third one requires a longer time to warm up, requires twelve or fifteen minutes may be, and the fourth one may require fifteen or twenty minutes, and it may be that the last sheet will require as much as thirty minutes; if you keep on and give six or seven sheets, each time you have got a little better control. That is the advantage of this heating pack. you know just exactly what to do all the while. The cooling bath will reduce the patient in every single case. Do not forget that. There is no fever patient whose temperature can not be controlled by the cooling pack. Do you believe that?

I want you to go away with this impression in your minds that the cooling pack will lower the temperature of every sick fever patient you ever encountered in your life. You never can find a case where the temperature can not be lowered by a cooling pack. If any of you do not believe that, stop to think for a moment. Suppose you take a patient and put him into water of 60°, and leave him there. Don't you think he would cool off after while? The same is true of the cooling pack. It is simply a question of the number of packs to apply ; that is all; simply a question of keeping at it.

The next question we want to take up, is how we shall apply this cooling pack.

G E N E R A L D I S E A S E S .

Nurses' Post-Graduate.

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

January 7, 1904.

I just received a letter from one of the leading physicians of England. He got hold of a copy of my Hydrotherapy thanked me very heartily for it, and expressed his high appreciation of it.

I was just thinking as I was coming up here that this is the first time in all the history of the world when there could be gathered together such a body of nurses as we have here this afternoon, who can discuss these questions intelligently. The questions we are studying of hydrotherapy, require a knowledge of physiology such as the average doctor does not know. He had it when he was at school, but he passed it over, and left it behind when he got out of school. It is surprising how little physiology enters into the average practice of medicine. Doctors will say, salicylic acid is good for rheumatism. They do not have to know anything about the physiology or pathology of rheumatism. All they have to know is that salicylic acid is good for rheumatism, and lime will kill malarial parasites. That is all they have to know about it. The practice of medicine by the use of drugs requires very little knowledge of the body. When doctors get out of school, they forget all they learned. It is simply amusing how little the average practicing doctors know. It is a sur-

prising thing that this marks an era in the history of the world when you can gather together a body of nurses, a hundred or more, who are able to discuss these questions on a physiologic basis, on a basis of physiologic law; so I am glad to spend this hour with you. I should have been here earlier, but Dr. Eggleston insisted on my seeing a patient who had hyperpepsia and an awfully sour stomach.

We were talking yesterday about how to lower the temperature. There is another way to lower temperature,--the Brand bath. What do you do if the patient chills in the wet sheet pack? That is a very important question. I found a patient some time ago taking a cooling pack, had a temperature of 103 1/2--had been ~~on~~ 103 to 104 for several days, and she was shaking. The nurse had been giving her a cooling pack for three hours, and her temperature kept steadily going up all the while. The cooling pack consisted of a double sheet wrung out of water, left rather wet, and laid over the patient. What would you think of that way of applying the cooling pack? What is the objection to that way? This cooling pack kept the surface cold. The cooling pack is not intended to keep the surface cool. The cooling pack is intended to cool the inside of the ptient--not the outside. The cooling pack is intended to warm the outside, but to cool the inside. It is intended to warm the outside by reaction. When you wring the sheet out of the water and apply it to the skin, the first of all it cools the skin; then a reaction takes place, and if the patient is properly covered up, the reaction will be complete; but suppose you did not cover up the patient, but left the patient uncovered; the skin will be cooled, the blood will stay inside, and there will be no cooling at all, but instead of that, the

temperature will rise/ This patient was shaking; her teeth were chattering. The surface still felt warm, but it was bluish. What does a bluish color of the skin mean? A mottled blue? What does it mean? It means stagnation of the blood, but before that it means a spasm of certain vessels. When you go out into the cold and get your hands blue, what makes your hands blue? It is because the small arteries contract. Suppose we have here an artery and capillaries. The arteries have thick walls, and the veins have thin walls. What do we find in the walls of the small arteries? Blood traveling up through the capillaries and coming into the veins. Suppose these arteries contract so hard that that the artery is shut up completely. The artery is completely shut up; no blood can go through the artery. What would happen to this blood? It stagnates, because there is no new blood coming along to push it out. While the blood is in the capillaries, what change takes place in the gases? Oxygen passes into the tissues, and what passes into the vessels?--Carbonic acid gas. If that stays here a long time, the oxygen would all pass out, pass through the tissues, and the blood would be saturated with carbonic acid gas. So when you see the blue color of the surface, if it is a mottled blue--if it is a general blueness that means something different; but if it is a mottled blueness, that means cyanosis. When that condition is present, you know that there is a spasm in the small arteries. This patient I saw had this mottled blue appearance that showed there was a spasm of the small arteries of the skin, so there was very little blood in the skin. The blood was crowded inside, and getting hotter all the time. What did I do for the patient? I will tell you. I saw at once what the trouble was. I went

and get some cold water, right out of the pipe, water about 60°, in the springtime; I wrung out a sheet out of that just as dry as I could wring it; then I had the nurses apply that sheet around the patient, wrapped a blanket around this, just as tight as could be, and though I applied a cold sheet colder than it was before, did not apply any heat at all because I wanted the nurse to see just what would happen--did not apply any fomentation, or any hot blanket pack, or anything at all but just simply applied water colder than that which had been applied for three hours; I wrung a sheet out of cold water, wrung it dry, and put it close to the patient, and had a warm blanket wound round and round the patient, and tucked in, and the shivering ceased immediately. The patient did not shiver five minutes; but from the time the patient was put in the pack, the shivering ceased, and in a little while the temperature cooled down. In fifteen minutes the pack was changed. Altogether she had five packs, and the temperature went down. If it had not been for that treatment, the patient would certainly have died. I have seen that thing a good many times. I had a patient once who had a temperature of 107°. Just think of it! You do not see that very often, do you? The patient had pneumonia, and a temperature of 107. A patient who has such a high temperature as that is a long time getting well.

In another case a patient was shivering without having any water applied at all. The patient seemed to have a chill, a congested chill it is sometimes called. It is not a proper name, for a chill is always a congested chill. The proper thing to do is to give that patient a rub with the dry hand, or dipped in water, and rubbed, with mitten friction. This rubbing will stop that shivering quicker than anything else.

When the reaction comes the blood will come to the skin, and as soon as the warm blood gets to the roots of the blood vessels of the skin, the shivering will stop. Unless the warm blood goes into the skin and warms up the sensitive nerve ends, the shivering will not cease. The cold rubbing is the most effective. Dry rubbing will relieve the patient while you are rubbing, but after the rubbing ceases, the chill will return again, but the cold rubbing produces reaction during the rubbing, and brings the blood into the skin.

When shall you use the hot blanket pack? Give the patient a hot enema, or a hot sponge, to the surface, a hot sheet rub followed immediately by something else. Fomentations to the spine, fomentations to the abdomen, put hot bottles around the patient, and spine bags. In treating a typhoid fever patient, or any fever patient, you ought to have two spine bags, so you can use either hot or cold, or both together as you wish.

I had a four year old girl, a diphtheria patient. She was taken down very suddenly with diphtheria; her eyes were rolled up, her skin was wet and cold, and she had a temperature of 104 1/2. I put her in a hot blanket pack right away, and in an hour or two the temperature was two degrees lower.

The Brand bath is a good bath. It has saved thousands of lives. Over a thousand persons have been treated in succession with it without a single death. In cases in which the disease was taken in hand right away, at the very beginning, the treatment was very successful; but in later cases, the results would not be so good. The Brand bath is a good bath. The temperature should not be lower than 76°. That is the proper temperature for the Brand bath. The patient must be

rubbed every minute while in the bath. There should be two persons to rub the patient, one on each side, and the patient should be rubbed all the time. Every two or three minutes the patient should sit up, and water colder than the water of th bath should be poured on the back of the head and allowed to runn down the spine. If the water of the bath is 76, this water should be 60°. The patient must be rubbed, and cold water poured on the back of the spine at the same time. That makes the water in the bath feel warm. It helps the reaction, and makes the patient warm when he lies down. Dash a pailful of cold water on the patient when he goes into the swim bath, and the water feels warm. It seems warm, because the water is a little warmer than what he had before. It is useful in the Brand bath, and prevents the patient from chilling.

The rubbing of the patient should be just passing the hand over the surface. It should not be hard rubbing or kneading of the muscles at all. When the patient has goose flesh in the bath, just pass your hand over it, and the goose flesh disappears, because as you pass your hand over, the arterial blood comes in from below, and warms the skin sufficiently. The patient must be rubbed after going back to bed also, until the circulation is well established. The best way to avoid chilling, is by giving a cool enema, and applying fomentation over the back.

If the patient does not like a cold shower bath, have him stand in very hot water. Make the foot bath very hot, as hot as can be borne. The soles and tips of the feet should be covered, and the water should be as hot as they can stand, and then the cold shower bath feels grateful.

So with a cold sitz bath. Whenever you give a cold sitz bath, 75° or 65° or less, always have a very hot foot bath at the same time, and you will find the patients get along without chilling, and especially if they have a blanket thrown around the shoulders.

The Brand bath should be continued twelve or fifteen minutes. As soon as the temperature goes down half a degree, take the patient out. When the patient is put back to bed the temperature will continue falling.

A continuous bath at 85° may be used for several hours, while the patient is continuously rubbed. A temperature of 90° will lower the temperature. Sometimes the neutral bath will lower the temperature better than a cold bath. If the patient is very nervous, so the reaction is very strong, it is better to put the patient in a neutral bath, or a bath of 90°. So the cooling pack is the best thing, because in the cooling pack you can have any temperature you want. Just let the patient warm up, and then cool it off until you get just the temperature you want. You mean have the neutral bath as long as you like,--all night if you want it. Many patients' lives have been saved by the neutral bath. Sometimes the patient would rather lay in a bath continually for some time rather than to change the packs all the time.

The typhoid fever germ is in the mesenteric glands. Put the patient in the Turkish bath, and sometimes he will sweat, and sometimes he won't. Sometimes we used to think we broke up the fever in that way, but we never could tell how it was going to act. It might be it was just a little ephemeral fever that passed off in a day or two.

Chicken broth is all right,--made from X Protose. X Protose has eggs in it. Eggs are chickens. You can make very good chicken broth by the yolks of eggs. When made into X Protose it is not colored so yellow, but it has the flavor of chicken broth.

When a patient has a temperature of say 104, what stage of the fever is it? If you see a temperature of 104, put the patient into a hot blanket pack and you could not eliminate the heat, so the heat would accumulate. In ten minutes the temperature of such a patient went up to 105.8. A temperature of 105.8 is a dangerous temperature. If a patient has that temperature he ought to be gotten out of it just as quickly as possible. A temperature of 105.8 for a few hours might do considerable mischief. A temperature of 107 will very quickly exhaust a patient's life. A patient can not have a temperature of 104 and 105 hour after hour, day after day and get well quickly. It will take months and months to recover from it. If a patient has a temperature of 105 for twenty-four hours four or five days after that you will be getting a hemorrhage or have pneumonia. I found a man some time ago who had been treated that way. He started in with typhoid fever, and had been treated about ten days with sponge baths, a sponge bath twice a day. That was absurd, wasn't it. Nothing else was done for him. When I found him he had acute inflammation of the kidneys as a complication, and pneumonia, lobary pneumonia, as another complication, and was comatose, unconscious. That is the condition I found that man in. His skin was cold and his lips were blue. The Brand bath would not have been the thing at all for such a patient. A hot blanket pack was the first thing for him. A hot enema was the first thing, and hot

water drinking. Then came a hot blanket pack, then a wet sheet pack two hours. Did not dare to give him cooling packs. I did not care so much about the temperature in that case as about the other things. They were more important. At the end of twenty-four hours, we gave him about three packs, and he became conscious, his temperature fell, he had a good big sweat, the pneumonia cleared up, and he got well. His hair all came out, and he has got a nice new crop of fine curly hair, and he is handsomer than he ever was before, and his life was saved by the wet sheet pack. There is no doubt about that.

I received a letter from an old patient, who was here five or six years ago. She had attended some school here at the Sanitarium, and she said she had had an interesting case. It was a case of a woman suffering from sweating sickness. This woman, she said, sweat all the while profusely, there was an old colored nurse there taking care of her, and this woman wanted to give her some cold sponge baths, but the nurse would not let her. She would not do anything but just rub her with a dry cloth, and rub on a little alcohol. The woman insisted on giving her some cold sponge baths, but she would not allow it. I wrote her back that the nurse was right, and she was wrong; because when the patient was sweating she was being cooled as fast as she could be. Nothing is better than sweating a patient. When a patient is sweating, you do not need to do anything more.

It is a very common thing for a patient having a very high fever to chill. It is because the fever is induced by heat retention. In how many different ways can alleviation

of temperature be produced? Of course we have heat elimination and heat production going on in the body all the time. If the balance of the heat is thrown off as fast as it is formed we have normal temperature; but suppose heat is produced more rapidly than it is thrown off. If the heat production is more rapid than the heat elimination, there would be a rise of temperature. Suppose the heat elimination is greater than the heat production, what would happen then. If heat is thrown off faster than it is formed, what would happen then? Suppose that heat production is increased, and the heat elimination is also increased, then what would happen? Suppose the increase of heat elimination was less than the increase of heat production, there would be a rise of temperature. Here is a patient who has a very high fever. When a patient has got a very high fever it is always because there is insufficient heat elimination. Whenever a patient has a very high fever, it is always because there is deficient heat elimination, because when the body is in its normal state, when the heat elimination is going on as rapidly as the body is able to eliminate heat, when the heat elimination is taking place as fast as the body is able, the heat production can not be so rapid as to raise the temperature to a very considerable point. Why? How much can a person sweat in an hour? How much does a person sweat under ordinary conditions? one and one-half ounces. A person may sweat three pints an hour. That is thirty or forty times as much. We will suppose an person is sweating profusely, and suppose there evaporates from the surface a pound in an hour, a pint,--one-third of what a person can produce. It is reported that Priessnitz used to make his patients sweat

so long and so hard that water ran through the mattresses, and ran down and dripped through on the patients down below. It used to wet through the mattress and run down on the flow below. So a person can perspire a great deal. Suppose a patient evaporates a pound of water. How many heat units are there in a pound? 1000. A pound of water after it is evaporated has 1000 heat units in it, and it takes one thousand units of heat to evaporate a pound of water. Here is a person who has evaporated a pound of water; it does not make any difference whether you have it in a pail or on the patientbs back. A thousand heat units have been carried off the patient. Suppose the patient weighs 100 lbs. Take 1000 heat units out of that patient, andwhat would be the effect on his temperature? How much would that lower his temperature? It would lower his temperature ten degrees, wouldn't it. That is ten heat units for every pound, and that would lower his temperature ten degrees, but the patient has been making heat during that time. There are seven heat units a minute, and in sixty minutes, an hour, the patient has made 420 heat units, and that leaves 580. Divide that by 100, and it would be 5.8. So the evaporation of a pound of water from a patient's skin would carry off heat enough to lower the patient's temperature almost 6°, in spite of the heat production which is ordinarily carried forward in the body.

Don't you see that sweating alone will lower the temperature as fast as it is safe to have it lowered? Do you all see that? Sweating alone will lower the temperature as fast as it ought to be lowered, fast enough for practical purposes to meet all emergencies; so when a patient is sweating it is not necessary to do anything to him except to promote

the sweating. You promote sweating by wiping the patient off. Suppose I had a damp cloth and I saturated that cloth and let the water evaporate from it; suppose I left the water on it so that the cloth was covered with water. It would evaporate more rapidly if the cloth was just kept moist, because there is a larger surface you see; so if the skin is not actually wet, if the moist with the sweat, but is simply moist, the evaporation takes place, and the cooling takes place much more rapidly so a sweating patient should wiped with a dry cloth frequently, and this wiping with a dry cloth will help evapotation. The alcohol encourages the water to evaporate. The alcohol does not harden the skin, but simply encourages the heat elimination by promoting the evaporation, so it is a proper thing to do. Nature has used the evaporation method of cooling a patient, and when you find nature doing that thing, that thing is the proper thing to do to help and encourage.

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G E N E R A L D I S E A S E S .

Nurses' Post-Graduate.

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

January 12, 1904.

In giving the wet sheet pack, take the temperature of the water when you wrap it around the patient, and just before you take it off, take the temperature again. Then you know what the difference is. Suppose the difference is 42°, and you have two pounds of water in the sheet, how many heat units will that be?--84. Suppose your patient weighs 84 lbs, how much heat would you take out of each pound of the patient? You would lower the temperature one degree. But the patient's temperature wont be lowered one degree, because the patient is making heat all the time. If you had a stove without any fire in it, and you applied the sheet to the stove, you would lower the temperature just one degree; but there is a fire in the stove and that is making heat all the time. But we lower the temperature a little because the heat is being dissipated more rapidly than it was before. If the patient is losing heat at such a rate that it keeps the temperature 102°, if we make the patient lose heat faster than the body is making it, the temperature ought to fall a little, ought it not? Suppose the sheet warms up in ten minutes. That will be 8.4 heat units per minute. Suppose the patient is making heat at the rate of thirty heat units a minute, and then if he is losing heat at the rate of thirty heat units a minute, that would keep the temperature at 102°, because when the temperature becomes stationary, the patient loses heat as fast as he is making it.

At first he makes it faster than he loses it, but by and by he loses it just as fast as he makes it, so the temperature remains stationary. If we apply a wet sheet to the patient, and carry off 8.4 heat units with a wet sheet, we will increase the rate at which the patient is losing heat; so while he is making 30, he is losing 38.4 in the ten minutes, don't you see? He is making 30, and he is losing 38.4. So he is losing faster than he is making heat, now isn't he? If we keep on with our wet sheets, one right after the other, sooner or later we are going to bring the patient's temperature down to a very perceptible degree. The fact that the patient's temperature is 102 and stationary shows that he is capable of eliminating the heat as fast as he makes it, when his temperature is 102. A patient with a temperature of 102 ought to throw off heat faster than a patient who has a temperature of 100. The hotter the patient is, the faster the heat goes off. If we apply the wet sheet so that we carry the heat off faster than the patient is making it, sooner or later the temperature will be 84. You can all see that, can't you?

I want to call your attention particularly now to the method of dealing with another glasssss of diseases,--diseases in which the fever is due to local inflammation of some kind, boils, for instance; inflammation in a joint, perhaps the knee joint. Suppose a person should break a leg and injure the flesh so that there is a wound, a compound fracture, and we have fever with it. First, let us deal with diseases outside of accidents, diseases of the interior body,--pleurisy, pneumonia, peritonitis, inflammation of the bowelks, abscess of the liver. I had a telephone message a day or two ago, wanting me to come over in a rush and kxxxx x operate upon a lady that

had an abscess of the liver, and a temperature of 103. Neutritis, appendicitis, tonsilitis, ovaritis, inflammation of the fallopian tubes, prostatitis, cystitis, inflammation of the bladder, hepatitis, inflammation of the liver, infectious jaundice,--these are all cases of fever due to local inflammation. We will suppose these inflammations are inflammations of the abdomen. We will begin with these, with the inside of the body, we will say.

In every single one of these cases there is just one thing to do, one thing to be done, and it is a more important thing than the lowering of the temperature. What is it? It is to get the blood into the skin, to divert the blood to the skin Of course the increasing of the vital resistance applies to these cases just as much as to others; but the great thing to be aimed at is to draw the blood into the skin. How large a proportion of the blood will the skin hold? The skin will hold onehalf to two-thirds of all the blood in the body. Suppose a person has inflammation of the liver. It is a congested liver, isn't it? What is the harm in that? When the liver is inflamed, what is the very first thing that happens?--Too much blood. Why? Because whenever there is a part sick, the blood goes to that prt to heal it. Do you see? It is the blood that heals, and whenever any part is sick, the blood goes there to heal that part. The blood vessels are dilated to enable the blood to come. Then why do we want to get the blood out of it? If we were perfectly healthy, if we never had sinned, never had become diseased, if we were Adam away back at the beginning, if Adam had a congested liver he did not have to have fomentations over it, or compresses over it; the liver could take care of itself; but our bodies have become so weakened by disease

and by degeneracy that they have lost the power to take care of themselves; the body itself is not able to cooperate with this healing principle in the blood as well as it ought.

I had a letter from a man the other day criticising "The Living Temple." Somebody called my attention to a criticism which a man made of "Living Temple" and published in a paper, and in this criticism, he said that the great fundamental error with the book "Living Temple" was that it did not recognize the fact that man after he sinned, in sinning, perverted all the laws of nature. When man sinned he perverted all the laws of nature; so when the life of God appears upon a man or in a man, it is acting through a perverted law, and operating through a perverted law, becomes a perverted life; so that God's laws first became perverted, then God's life becomes perverted. Of course, that is a minister's philosophy. In the first place, God made the laws. Nobody but the law Giver can change the laws. We call a thing a law because it is an order that is established, an unchanging, unvarying order--that is what makes a law of it. If this state makes a law, can you or I change that law? The legislature can change that law, but we can not change it. Who made the laws of our being? Who alone can change these laws? God. Then God only can change the laws of our being. Then if God perverts the laws of our being, and these perverted laws pervert the life of God, then what perverts the life of God? God himself; because he perverts the law, and then that perverts the life; so you see that is charging upon God that he is responsible for all the things we suffer, because he perverted the laws, and he perverted his own life. Well, you see what a minister's doctrine is. We can not believe such a thing as that. It is not

is. We can not believe such a thing as that. It is not God's law that is perverted, or God's life that is perverted. It is not God's law that is perverted; it is not God's life that is perverted; it is man that is perverted; it is man, man's will that is perverted, and through the perversion of his will, and the cultivation of wrong habits of life his body becomes perverted; but God's life can not be perverted, and the laws of man's being can not be perverted; if they are the laws of man's being, and are perverted, man would no longer be amenable to just and perfect law, but to the perverted law only. The laws of our being are just as perfect as they ever were. Here is a man sits down to a piano to play, a musician; if he makes beautiful harmony it is because he conforms to certain laws, the laws of music. Does that man make the laws of music? Who made the laws of music? God, certainly. When this man conforms to these laws, he makes most beautiful music, provided the piano is in tune. He might be a good musician, but suppose the piano was out of tune. Does that pervert the laws of music? No No; the laws of music are just the same as they were before, and the piano may be a perfect piano as it was before, but the music is bad because the piano is out of tune. That is just what is the matter with the world. You and I are out of tune, but the laws are still perfect. You see the principles are all right, but it is simply the man himself. God is the source of all the life, of all the being; but man has become perverted through the wrong action of his own will, and that is his own voluntary act; but God's life is just as perfect as it ever was.

We might cut somebody's throat. This light would help us to do it.

help us to do it. The sunlight shining upon a murder, which enables man to do murder, is just as pure light as ever shown. So the life of God that is in our bodies is all right. It does the very best it can for us under the circumstances.

Suppose we have a liver that is perverted. This inflamed liver is perverted; it was perverted before the inflammation came. The diseased liver was perverted before it got sick. As I said, if Adam had a congested liver, he would not need a fomentation, or a compress; it would not have been essential, because it was a perfect liver, and able to take care of itself and heal itself by means of the blood passing through it; but because of disease, because we are perverted men and women, when the inrush of blood comes to the liver to heal it, the liver is unable to bear that strain. The blood vessels become very dilated; they lose their power to contract. The poisons formed in the liver paralyze the vessels. The blood stays there a little while, the oxygen is all consumed, and there is nothing left but carbonic acid gas, and that carbonic acid gas asphyxiates the cells. They get black in the face. Their liver is black in its face, strangled almost to death, to asphyxiation. It is paralyzed, you see. In order to help this liver it is necessary to move that blood on, and get some more fresh, new blood in there you see. That is the purpose of the treatment. Let us see how we will go about that.

We give the patient a hot bath, and that hot bath makes a sudden rush of blood to the skin, doesn't it? Every internal organ has to contribute something to that supply. The skin makes a draft on all the rest of the body. Half the bl

blood of all the body makes a rush to the skin. So every organ has to give up a part, and the liver has to make its contribution with the rest. As the liver sends its blood into the skin and other organs and those blood, the liver sends part of its blood, so that the liver is drained. As the liver is drained, the blood vessels are emptied, and new blood comes flowing in, and there is a complete change of the circulation throughout the body; so the blood is changed through the liver. That is the most important thing. That relieves the congestion right away.

Here is a person suffering great pain in the stomach. Put that patient in a very hot bath, and that pain will be relieved right away. No treatment gives such relief as the application of heat to the surface. How can we get the greatest possible effect by this hot application to the skin? Suppose we put a fomentation over the stomach, will that relieve the pain congestions? Yes; but suppose we make the fomentation bigger, that will give more relief. The larger the application, the greater the relief. The area is increased. There are about twenty square feet of skin on an average,--twenty square feet. We would not think we were so big, and had so large a surface. I don't think I have twenty square feet. There is a gentleman over at the Sanitarium who has, I think, about thirty. It depends upon the size of the patient. Judge Bennett used to say to the bath boys, You will have to treat me by the square yard. The average is twenty square feet of skin. Suppose you put a fomentation a foot square over your stomach, you would get some relief from that; but suppose instead of that you put on a hot blanket pack, how much more is that hot blanket

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pack worth than the square foot? It is worth twenty times as much. Suppose you put that man in a hot bath, do you get the same result? The hot bath or the hot blanket pack is worth twenty times as much as a small fomentation. I have seen a hot fomentation put over the stomach that was not larger than half a square foot--a towel folded up, wrung out of hot water, and put over the stomach. It did do some good.

There is another reason why it does good in relieving pain. It is not only in withdrawing blood from an organ; but there is something else in it. It relieves pressure. Heat has an hibitory effect upon pain. It neutralizes pain somehow. It destroys pain as well as relieves pain. It kills pain. Opium kills pain; morphia kills pain; so heat also kills pain. That is a good thing to remember. When we apply a fomentation to twenty square feet, which is the hot blanket pack, that ought to be worth twenty times as much in killing pain as a fomentation one foot square, ought it not? Wouldn't you think so? No, it is not worth twenty times as much. There is a reason for it. Who can give the reason why a hot blanket pack or a hot bath is not twenty times as good as a fomentation a foot square? It is because the heat is most effective when applied to a reflex area. That is the reason. Every organ of the body has got a face. The countenance is the brain face. The scalp is part of the brain face. The stomach face is over the pit of the stomach. On one side of the body is the liver face, and on the other side of the body, the spleen face; the back and front of the chest constitute the lung face, and so on throughout the body. The kidneys have two faces, a front face, and a back face. The back face is the small of the back, and the front face the lower end of the sternum. The whole body is

in general a face of all the internal parts. If you have a neuralgic headache, some of you know from experience that a hot fomentation applied about the head is a wonderful relief. If you have a toothache, or an eyeache, a hot fomentation applied over that tooth, or over the eye will give relief. If you have a toothache you get more relief by applying the fomentation to the tooth than you would if you applied it to the back, didn't you? You would not expect to get very much relief from toothache from a fomentation on your shoulder. Really, though, it is a good deal bigger than it is on your face; but this reflex area, though is more effective, because it has more direct relation to the tooth. So a fomentation over the stomach does more good than anywhere else; but when the heat is applied to all other parts, there is a slight amount of benefit from every surface that is touched. In olden times they used to require men to commit suicide as a penalty. Seneca, the great Roman philosopher, if you are familiar with his history, you will remember that Seneca became obnoxious to the emperor because he would not lend himself to all the emperor's wicked crimes; so the emperor condemned him to death. He allowed him to select his own method of suicide, of ending his life. What do you think that was? The easiest way you could possibly think of? Opening the veins in a warm bath. Why did he get into a warm bath to open that vein? To ease the pain of dying. That warm bath benumbed the sensibilities, and lessened the pain, and the distress, and the suffering of dying? Now this effect is recognized, always has been recognized in relieving pain? So you see a dog that has a pain in the stomach , you will see hiding that dog get a warm corner somewhere behind

a stove and curl up. If a boy has got a pain in the stomach, the first thing he does is to double right up. A man at the Sanitarium had an attack of appendicitis, he was on a load of wood coming in from the country some place, and he said it was a terrible pain, and it doubled him right up. He could not help himself. That is [redacted] reflex. Why is it a person doubles up when he has a pain? It is an automatic process by which the treatment is administered. Drawing the thighs up on the abdomen and the chest down retains the heat.

What is the first thing you do when you have an earache? You put your hand up there. That is for the same reason. You see a baby asleep get the earache, and it puts its hand right up on its ear. You see a dog with the toothache, and he puts his paw over the tooth. We used to have a dog that had the toothache. He used to whine and groan, but he always put his paw right up against his face where his tooth was aching. It was very noticeable. I have often noticed it. You will see an animal with an aching ear or tooth, and it will get its head down beside its body somewhere. You have noticed this I am sure with some animal that has a sore eye--you have noticed him put his paw over his eye. It is to secure warmth in every case. So you see it is an instinct in all animals to apply heat to relieve pain, and the heat does relieve pain. It is not a trick taught to them. A dog does not have to get information from a man. A dog does not have to be instructed to put his paw on his ear when his ear aches. The dog knows that. A dog has the same knowledge in him that man has in that regard. In fact the dog seems to be more intelligent with reference to these things than men.

I saw a monkey out West hanging over a hot water pipe. I read a paper before the Kalamazoo Academy of Medicine, and in the paper I was telling about the wonderful things water would do, and a doctor arose and disputed me, and said water was good in a general way, but he did not believe in these local effects that I had been telling about; they were too marvelous to believe, and he did not believe it or take any stock in hot water; said there were no anatomical means by whichthese things could happen. For example, he said, there are no blood vessels in the skin over the stomach. He did not study his anatomy as you do. If you want to get real downright information out of your anatomy, you must read the fine print. The little foot notes have actually got more in them than the coarseprint. Well I told them this story, that when I was down in San Diego some years ago, going out from the hotel in the morning to take a bath in the sea--the water was 54° that morning, going in for a little surf bath; I did not stay in very long. The breakers were very heavy, and very cold too. You do not want to stay in very long in that kind of a bath. But I went over to the monkey house. There was a mother monkey there with several babies, and they had all been eating some green apples, eating too much. The mother had gathered them up in a little pile, and she stood guard over them. One little fellow evidently had eaten too many, and she had learned by his experience probably that those green apples were not profitable for her family. There was a steam pipe running along some ways up the side of the cage, and this little fellow had climed up in the cage and got onto that hot water pipe, and hung himself there. He had faith in hydrotherapy, you see. He knew that there was a good effect from a hot application on the stomach.

He did the best thing he could to apply fomentations to himself. I told them the monkey knew enough to do it; but the doctor did not. We had a laugh at the doctor's expense.

This is a very important principle, that there is a power in heat to kill pain. It is not all done by simply drawing the blood to the surface; but heat has the power actually to destroy the pain so long as the hot application is on. Suppose you should take a man out of the hot bath who had pain in his stomach--gastritis,--a great pain, and you should take him out of the hot bath, what are you going to do with him next? You can not keep him in the hot bath, or the hot blanket pack continually; his temperature would rise too high. You can not keep a fomentation over him all the while, because by and by there will be an increase of pain. It is quite easy for that thing to happen. Keeping on the fomentation too long will increase the pain. I remember a case very well that I saw in Seattle some years ago. A couple of young men had opened a bath house there. They had not been trained here. While I was there I went to see them, went in to see what they were doing. A man came in and had treatment while I was there. He had a terrible pain in his stomach, I think he probably had ulcer of the stomach. The nurses gave him fomentations. He dressed himself, and before he got it out he was all doubled up with pain, and he said he felt worse than he did when he came in there; he said he felt that the treatment had done him harm. The nurses came to me and asked what should be done.

Now this patient was worse than before he had the treatment. What should they do? So I had the patient undress in a room so I could examine him, and I saw there was a red spot over his stomach about three times as large as my hand, a

little larger than my two hands. I said, You did not apply a very large fomentation. No, they said, it was pain in the stomach, and it did not take a very large fomentation to cover the stomach. What did they do next? They just dried him off? The patient was suffering very severely. That was what was the matter. The evaporation after the fomentation had chilled him, and the blood had returned into the body, into the stomach, and the stomach was more congested than it had been before. The fomentation had not been sufficient to produce any lasting effect. I put him into a hot bath, and heated the water up until the skin was just as red as a lobster all over. I left him there about five or ten minutes, took him out, wrapped him up with two woolen blankets; then I went over the surface of the whole body with a wet towel, gave him a towel rub, rubbed until the skin was red before I left it. Then I thoroughly dried the surface. I gave him this pack, and then went over the whole surface of the body until it was all red. Each part was rubbed before I left it. When I got through the man was perfectly easy, and went off happy. He came back every day for three weeks, gained twenty pounds, got fleshy, went home and sent a whole lot more people there. He would have given the place a very bad name if he had gone off before. I suppose hundreds of patients have been treated by Sanitarium nurses and doctors sometimes who had bad results because they did not recognize these principles we are talking about. I do not care so much about the names of diseases as about getting hold of these principles, so that you can set them in operation wherever you are. You will be astonished to see how easy all the difficulties will disappear when you just get hold of these fundamental principles.

Here is this inflamed liver, or inflamed stomach, or inflamed spleen or pancreas, or any inflamed point inside of the trunk. Give the patient a hot bath or hot blanket pack, or a big fomentation to relieve them. When you take him out of the hot bath, after fifteen or twenty minutes, what are you going to do next? Give as short a cold rub as you can. What for? To fix the blood in the skin. That is what that is for. Why not give him a cold bath? He would have a reaction; if you can get a good reaction afterwards that would fix the blood in the skin just as well, because it would centralize the effect of the heat in killing pain, do you see? The cold would resurrect the pain, because cold is exciting, and stimulating, while heat has the opposite effect. Heating a part increases its sensibility; if you cool a part, it benumbs it, lessens the sensibility of it. The reflex effect of cold is exciting, while the reflex effect of heat is depressing,--just the opposite. Cold increases pain reflexly, while heat kills pain. So we must make our cold application a short application, in a small area at all a time, and do the thing very carefully, so as to prevent the increase of the pain. Then after that apply a heating compress to the legs. That is the next thing to do--a heating compress to the legs.

I will answer another question that I see you are going to ask me. A hot application applied to the surface relaxes the surface vessels, and at the same time has the effect of relaxing the internal vessels. If you apply a fomentation over the liver, it reddens the skin. What is the effect upon the liver itself? It congests the liver. It draws the blood to the surface, but at the same time reflexly it has the opposite effect. The reflex effect is to shut the vessels of the liver. We will study that more tomorrow.

V-S-1-4--S.

Nurses

LECTURES ON GENERAL DISEASES.

Diet in Typhoid Fever. Jan.26-04.

Dr. Kellogg.

It is an advantage at the beginning of typhoid fever, to let the stomach rest for two or three days, or three or four days, rest almost completely. Why ? Because by with-holding food, the oxidising powers of the body will be used in burning up and destroying the debris of the tissues. When a person has fever,---remember this that I am going to tell you now,---it is not simply the poisons produced bythe disease that the patient has to struggle with; the poisons made by the body, are what the body has to struggle with, and doubtless the large share of the most distressing symptoms that the patient suffers from are due not directly to the poisons itself from the disease or germs, but to the body poisons. That is unquestionably true. Now how does it come about ? It is this way. The poisonsthat have been generated by the germs have had to be disposed of; the liver, the kidneys, and other organs of the body have had to give attention to these poisons. When a person takes chloroform, and dies it is not the chloroform that kills him directly, he is killed by the poisons of his own body. Suppose you tie a rope around the neck of a person, and he dies, is it the rope that kills him ? If a person stays too long under water in a swimming pool, and dies, what did he die of ? The water ? No; the poisons of the body. They accumulate in the body, and so the patient,gets killed. When a patient dies of suffocation, it is not the water or smoke that kills him, but

but he dies of his own poisons. Whe a per-son has fever, the fever lessens the power of the organs to do their own work, and so the poison kills them. When a person has fever, heat production is increased, three times as much. Suppose I have a stove and am burning wood in it, what is the consequence ? Ashes and smoke are formed. If I burn three times as much fuel there should be three times as much ashes and smoke. Then when a person's temperature is 101, 102, or 103, there will be two or three times as much poison produced, as usual. At the same time, the body has less power to destroy the-se poisons, than under ordinary conditions, The liver is struggling with the fever poison; the kidneys are the same; and so on. Suppose here is a donkey, and he has got strong enough so that when a man gets on his back, he can ride aright. Now suppose this donkey has already on his bagk a sandbag, and it is about all he can carry,and then along comes a family and gets on. Now, here is the body, having its ordinary work to do. Then disease comes along, and it has to struggle with this. Then suppose the disease gets to such a condition that there are three times as much poison in the body to deal with. The poisons of the disease germs have to be struggled with, and the body is crippled. And that is why the tngue gets coated in fever, and why the skin gets dry, and harsh. There is no sweating. The whole body is deteriorated. That is why the breath is so bad. It is because of the accumulation of these poisons. It is wonderful that a person can live. It is simply because the wonderful vitality in these living cells. Well now, when we take this into consideration, it

is of the highest importance that we should do these things which will encourage the burning up of these poisons, and will produce the least poisons. The patient's diet then should aim at getting rid of poisons. Suppose you have very cold weather, and your wood supply is very small, and by and by it gives out, and you have an awfully cold spell. What would happen if your thermometer should drop to 200 below zero ? You would look around the house for everything that would burn, and then you would burn up the furniture, and would pick up all the old scraps, and paper, and paste-board boxes, etc. and then you would get the coal in the basement, and sift out every cinder, you could find, and burn them. So that we would have a pretty clean house by the time the cold snap was over. All the rubbish would be burned up. That is exactly the case with the human body, with the man who starves. When a man starves, a greatvdeal of this rubbish that has been taken in, was lying around like half-burnt cinders. That is true of the body just the same. So when a person comes down with fever, if he has been eating up till the last day, and he does not eat now, it is more likely to burn these other things up, because there is no other fuel for the fire, and that fire must be kept going. Now suppose you take in food. We will give a man his usual quantity of food, which will be nough to make ten thousand heat units. Don't you see the oxygen must be used in burning up that ten thousand Heat units ? If you don't give him any at all, he has to burn that same ten thousand heat units, just the same. So every nook and corner of the body will be searched for combustible material. That is a great

thing to know. It is a big idea. The fact is that the body has gotten full of cinders. Uric acid is a s cinder. When it is burning it becomes urea. So when a man gets down with fever, it is because his body gets full of cinders. He would not have fever, but for the fact that the body is brim-full of cinders. That is why his resistance is so low. That is why he gets the fever. Now the best thing to do for the man is to get those cinders out of him. The hot bath will do a little for him, but the starvation will do a great deal more. Because if you stop the eating, you don't supply any fuel to the stove and then the body has to hunt around for all sorts of odds and ends of scraps, to throw into the fire, and so the cinders are burned up.

Nurses

LECTURES ON GENERAL DISEASES. DR. KELLOGG .

DIET IN TYPHOID FEVER. F

Feb. 4/04.

We were talking about getting the patient to starve for a few days so as to burn up all the rubbish all about the body. That is just as you would do if you had a famine of fuel/ That is just what you want to do in typhoid fever; and in the beginning of the disease, because the purer the blood is, the better it can contend with this disease. When a person has typhoid fever, the blood is not as alkaline as it ought to be. The blood is normally alkaline. Now when a person has typhoid fever, the poisons that are formed in the body lessen this alkalinity of the blood. And when the alkalinity of the blood is lessened, that lessens the the power of the body to defend itself, and to destroy germs, and in order to be able to destroy germs the blood has to be strongly alkaline. I had a patient the other day who had boils, and pimples all over him. He had a bad taste in the mouth. I knew very well that the urine would be highly acid. Why ? Because of this evidence of lowered resistance. And sure enough, when we examined the urine, there it was --acid, 1 1/2. Sometimes it gets up to 2 or 3. In typhoid fever, the urine will very likely be strongly ~~alkaline~~ acid. Acid urine means acid blood. I don't mean actually that the blood is acid, but that its alkalinity is diminished.It is not as high as it ought to be, for ordinary urine would not be so strongly acid. When the blood loses its alkalinity, it loses its

power to destroy germs, and to combat this typhoid fever. What is it that diminishes this alkalinity of the blood ? These poisonous matters which are formed by the body, and are acids. Is the smoke from a fire acid or alkaline ? It is very strongly acid. Pyroligneous acid, which goes up the chimney, represents the acid formed in the body when the body burns up, and the tissues burn. And these acids lessen the alkalinity of the blood. If a person starves a day or two, it helps to burn up these acids. And that increases the power of the body to fight disease. This starvation must not go on for a week. I knew a nurse once who kept his patient starving for a month, and the man died.

Dr. Neimeyer, the famous German doctor, says that the best thing for typhoid fever is fruit soup. And there has never been anything better found. It would be a good thing to sweeten this fruit soup with malt-honey. But you would not want to cook the malt honey with it, as that would make it bitter. You should add it after it had stopped boiling. If you could not get malt honey, use raisins, or prunes or figs, but I should think raisins would be best. Soak the raisins for a while, and then turn it off. The soup must be perfectly clear A very good thing is fruit juice, of all kinds: apple juice, grape juice, raspberry juice, blackberry juice; all kinds of juice.are good, only they must not be sweetened with cane sugar. Fruit juices sweetened with cane sugar are very bad. And you must not give them fats. Don't give them fats at all. If you do give them fats, at all, they should be in a very digestible form, such as almond cream, or something

of that sort You may give them a little yolk of egg, beaten up with apple juice. It makes a very good preparation. Take a yolk of egg and just drop it into hot water for a little while. Or the whole egg, andafter dr take the yolk out. Boil till slightly thickened. Put that into a glass and beat it up just as you would a raw yolk, and then add the apple juice. It makes a very nice thing indeed for a typhoid fever patient. Any kind of fruit juice makes a very nice egg-nogg.

If you cannot get fresh fruit, get dried raspberries. Figs and prunes are not acid. Acid fruits are better. Dried apples are excellent. A few apricots can be put in Apricots contain a very good acid, so that if apricots are very good indeed, as they are a good antiseptic.

Nothing is better than this fruit juice, and it will kill typhoid fever germs, and prevent their growing in the alimentary canal.

Suppse you have not got any of those things; what next ? Corn meal gruel. Potato puree. Bake some potatoes, and while nice and mealy turn out the potato, and put it through a colander, so as to make it very fine, and make a puree of it. Make a thin porridge ofit, or thin soup of it, and this is a very excellent thing indeed for typhoid fever patients There is nothing more digestible than this starch.

A typhoid fever patient must be made to chew his food very thoroughly.And take it in very small quantities. Give him food three or four times a day, but not every hour. If he only takes a little then he may be fed 4 or 5 times a day, but better give him a little, and then if he does not take it freely, give him a little more. Make the food appetizing, and while he is eating it, talk about it, and tell him how nice it is. Excite his mind about it, for in doing that, you make his stomach produce more appetite juice. When you eat things that you like, the stomach produces appetite juice; when the mouth waters, the stomach is pouring out gastric juice.

LECTURES ON GENERAL DISEASES. DR. KELLOGG .

DIET IN TYPHOID FEVER. B

Feb. 4/04.

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Nurses

LECTURES ON GENERAL DISEASES.

Dr. Kellogg.

Feb. 9/04.

PNEUMONIA.

I asked a man once what he would do for a patient with pneumonia, and he replied, "I would wrap him up in a wet sheet." I said, "Would you wring it pretty dry, or leave it rather wet ?" He said he would leave it rather wet. "Would you wrap the patient up very warm ?" "No; I would leave him uncovered, so that the evaporation would cool him." Do you think that would be a good plan ? No. Wouldn't that cool him off ? Yes; but that might be the very thing that brought on his pneumonia. Why is that kind of cooling especially bad and dangerous in oneumonia ? Beacuse of the congestion of the lungs. And what is true of pneumonia is true of every other kind of internal inflammation; whether gastritis or appendicitis, or inflammation of the bowels, or inflammation of the liver, or any sort of internal inflammation. Application of a wet sheet, and then allowing it to cool by evaporation, or by sponging the patient and allowing it to cool, is the very worst thing for such a case. Why is it so ? Beacause when the blood vessels are contracted, by cold, the blood is driven off at once, and the internal parts will be more congested than before; and would the patient's temperature be likely to be lowered or raised ? Rised. Because the elimination is diminished, and the blood vessels are contracted, and the blood is retained inside. A patient will be cooled off 3 times as quickly if wrapped up in a woolen blanket as if not wrapped at all. You want first the cooling and then the reaction, and then another cooling When you begin cooling and then allow reaction to take place the blood comes to the surface to be cooled. Another thing about it. When you apply cold to the skin, and the vessels contract, it

stops the circulation in the skin. Go out in the cold, and your hands get blue. Why ? Because the blood vessels are contracted, and the blood cannot move off. Now suppose I have here a tube and the water is flowing through it. If I should pinch that tube in one place, so that the water could not move, would that stop the water flowing here ? (Pointing to a diagram). Yes. In the blood vessels, the blood comes up and divides into the small vein, and then these are joined, and the small arteries here, are joined together, and form a large vein. Suppose this artery contracts, then can any blood circulate through it at all ? No. Then there is almost no blood flows through it at all; so what will be the effect on the blood ? It stops; and when it stops, the carbonic acid gas accumulates there, and that is why the hands become blue.

Did you ever see a patient who has had a fomentation for three or six months, and know what they look like ? They have a very curious mottled picture. When a patient is blue, has cyanosis, because of contraction of the arteries, then he has that kind of blueness,--a mottled blueness. Did you ever see anybody a uniform blue ? Yes. A child has been suffocated, and has been holding its breath till it is black in the face, -that is uniform blue.When you go out and get your hands or arms blue in cold water for example, is it a uniform blue or a mottled blue ? It is a mottled. If a person was in a cold bath or had a chill, is the blue uniform blue or mottled ? Mottled. When a person is chilled and begins to look blue, it is a mottled blue. Those two kinds of cyanosis mean the oppsite. When there is general uniform blueness, it means that the blood vessels are all dilated, and the blood is driven more slowly through the skin, because the heartis weak; or the patient cannot get air enough. When you have a mottled blueness it means there is a contraction of the

small arteries., So that the blood is prevented from passing through the veins. This contraction of the small arteries indicates a diseased condition. When such a state is present, it is dangerous to give an anesthetic, and if you have a patient who is suffering with typhoid fever, and you see this mottled blueness it means that in a day or two he will have heart failure, because the heart will get tired out, having so much hard work to do. Then you are likely to have a col lapse. So it is a great advantage to know that. If you rub ice on a person before giving an anesthetic, and mottled blueness appears, it means that if you give an anesthetic he may die of it. In order to guard against that I give brandy in every single case before giving chloroform, so as not to run therisk of getting into mischief. The alcoho l dilates the artery, and takes that pressure off, and relieves the heart before the chloroform is given, and I think sometimes saves the patient's life.

In pneumonisthe heart has extra work to do. Suppose you give a wet sheet pack, and cause contraction of these little arteries, all over the body, and you give the heart a tremendous amount of work to do. Now, not only the ~~heart~~ lungs, are obstructed, but the skin is, and so the heart has an enormous amount of extra work to do, and the heart may be tired by it. And that is a very serious thing. We see then, that in pneumonia, you must exercise the greatest care in applying to the patient a prolonged chilling process of any kind. Never do that. Never give such a thing as an evaporating wet sheet. Dont put a patient into a Brand bath. I dont believe in the Brand bath in pneumonia. Some doctors do, and I daresay it is better to put a patient into a Brand bath than to give him quinine, or whiskey, or opium. Whiskey and opium used to be the great remedy for pneumonia, but better give a Brand bath than that. So I think some people are helped by the Brad bath, but there is something better. The cooling wet sheet pack is far better for the reason that there is a short, momentary application of cold, there is an instant reaction to it; and the crowding in of blood into

the interior lasts only for a few seconds, and the patient is wrapped up very quickly. Take the cold sheet and wring it pretty dry, and wrap the patient up very snug, and with warm blankets. And you let the patient remain there till thoroly warm, before you give another. That would carry away some heat, because it would warm the water up, and it would do something else; what else ? Dilate the surface vessels, and lessen congestion. The patient begins to breathe easier right away.

Another thing it does. When you put cold water on the chest of a patient, what effect does it have ? It makes the patient breathe. When you have cold water dashed upon you, and you breathe deeper, is it a hard thing ? No. It is like a pump handle working itself. But when you undertake to breathe that way, without this water, it is hard work. But when one has cold water dashed upon him, he breathes deeply without any specially hard work. You go into a cold bath, and see how easy it is to breathe. You don't get tired of breathing. The breathing is easy. The cold water excites the respiratory center, and it makes the thing go automatically. When you go walking fast, do youget tired of breathing ? You may get out of breath, but do your lungs get tired ? Oh no. But you try to practise deep breathing, exercises. Breathing is double as hard. How long can you keep that up ? It is very tiring. You get tired of that, in a minute or two. But if you walk rapidly, you can breathe deeply, after you get your second wind, and then it works easily

That is what the cold bath or cold sheet pack does for the patient in pneumonia. It makes breathing easier. It relieves dyspnoea and that is a very important thing.

Well, there is something more than that. Do you know what leucocytosis? It is the increase of white blood cells. That is the thing upon which we depend in pneumonia. Do you know how much they increase in pneumonia ? Four or 5 times. How many blood cells are there in the body ?

Thirty millions of millions. How many of these are white ? About 1 in 700 of them. Forty three billions of them then, are white cells. How many people are there in the world ? 14 hundrd million; then there are about forty times as many white cells in the body as people on earth.

A person comes down with pneumonia, and if we examine his blood on the first day, we may find that he has three or four times as many white blood cells as he had before; and if we examine the blood in two or three days after, we shall find that he has perhaps 18 times as many. Those white cells have to be created. That is a wonderful thig Aperson may have in a single ounce of pus from an abscess, as many as 150 billions of white cells, and may form as many as two or three pints of pus in a day.

These white cells are made to defend the body. They may be created at the rate of fifty millions every second. And they are as much new creations as though a flock of birds suddenly appeared in the sky. That is going on in every person who has pneumonia, or any otherdisease Now then we have a means of helping in this, and the wet sheet pack is one way of doing this.

That's all for to-day.

Nurses

LECTURES ON GENERAL DISEASES TO NURSES.

[illegible]

Dr. Kellogg. Feb.8/04.

It is a good thing to learn how to master a disease. If you learn how to master pneumonia, you can deal with any acute disesase. The first thing when you have a disease to deal with, is to know what are the symptoms of that malady. Then you want to know what these symptoms indicate, and what are likely to come to-morrow, as well as what you have to-day. Because when you start in with a patient who has a disease, like pneumonia, you know it will take that patient five or ten days at least, to get well. If you start in on a case of typhoid fever, it will be six weeks; and each day will be a new picture. Each day has something different. You want to know what to expect. It is just like taking a trip down a river. It is a continual change of scenery. You ought to think of that. Yesterday I went into a room and found a patient and a nurse---I think it was just after the change of nurses, in the evening, and I said to the nurse, 'What is the patient's temperature ?' She said, 'I don't know'. It was about 9 o'clock. "What was it this morning ?' 'I don't know.' 'Did he have any fever ?' 'I don't know'. Well, I found that nurse did not know a thing about that patient. He went in there, and the patient asked to have something done, and he did it or he would make a complaint about something, and the nurse would see to it; and that was about all he did. I don't know whether he knew what was the matter with the patient. The first thing that nurse should have done, five minutes fter going into that room, would have been to look the record over, and find out all about him., so that he would understand You see there are two ways of being a nurse. One way is to drift along, just doing what you are told, and doing it mechanically, and another is to enter into the case, and take possession of the situation, and feel

that you master it, and that with the Lord's help you are going to run that thing, and have the thing done right. You want to see that the temperature is kept right, and kept account of, and that everything is done right, and to co-operate with nature. You want to know what nature is trying to do, and to see that you are trying to co-operate with Nature all the while.

Pneumonia is one the gravest diseases that human beings suffer from. In most communities four per cent of the entire population suffer from pneumonia. In New York, Boston, Philadelphia, and Chicago, 4% of the entire population, according to a very excellent authority. If there are a thousand people, 4% would be how many ? Forty of them would have pneumonia, in the course of a year. From now up till May,--March, April, and May there are going to be deadly times. Thousands of people will die. Pneumonia has come to be of the most deadly of all diseases. It kills more people than any other disease known. More people die of that, than of consumption. So it is important to know how to deal with this disease, for it is becoming a swrious thing. How many people ordinarily recover from pneumonia, in the ordinary way of treatment ? For the last 30 years, the average mortality of pneumonia, in the Boston General Hospital has been 30%. Three out of every ten died.

When a person has pneumonia, remember that it was because he was feeble; because he was susceptible. Perhaps he caught a severe cold. Perhaps he was weakned by fatigue, and then got pneumonia. Perhaps he had some other disease : typhoid fever, or measles, or small pox, or some other infectious disease, and the system was weakened in that way. When pneumonia is prevalent, everybody has pneumonia germs in his mouth. I presume if the saliva of every person in this room was examined, you would find pneumonia germs in it. Because the pneumonia germ is nearly always present in

saliva, or germs capable of producing pneumonia. When a person has pneumonia, first see that his resistance is kept up. How will that be done ? By cold towel rubs or cold mitten friction. If a person has pneumonia, and you keep on putting fomentations on the chest, and poultices, and hot treatment, you may weaken the patient while relieving him, and do it to such a degree that he will die from exhaustion. I have seen many a patient made worse by hot applications. There is a danger in that;--that as yourelieve the patient, you reduce and weaken him by keeping him perspi-ring all the while. Along with these hot applications must go cold applications every two hours at least. Well, we can say more about this to-morrow.

R.

LECTURES ON GENERAL DISEASES TO NURSES.

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Dr. Kellogg. Feb.8/04.

It is a good thing to learn how to mster a disease. ~~Xx~~ If you learn how to master pneumonia, you can deal with any acute dis esase. The first thing when you have a disease to deal with, is to know what are the symptoms of that malady. Then you want to know what these symptoms indicate, and what are likely to come to-morrow, as well as what you have to-day. Because when you start in with a patient who has a disease, like pneumonia, you know it will take that patient five or ten days at least, to get well. If you start in on a case of typhoid fever, it will be six weeks; and each day will be a new picture. Each day has something different. You want to know what to expect. It is just like taking a trip down a river. It is a continual change of scenery. You ought to think of that. Yesterday I went into a room and found a patient and a nurse---I think it was just after the change of nurses, in the evening, and I said to the nurse, 'What is the patient's temperature ?' She said, 'I don't know'. It was about 9 o'clock. "What was it this morning ?' 'I don't know.' 'Did he have any fever ?' 'I don't know'. Well, I found that nurse did not know a thing about that patient. He went in there, and the patient asked to have something done, and he did it or he would make a complaint about something, and the nurse would see to it; and that was about all he did. I don't know whether he knew what was the matter with the patient. The first thing that nurse should have done, five minutes after going into that room, would have been to look the record over, and find out all about him., so that he would understand You see there are two ways of being a nurse. One way is to drift along, just doing what you are told, and doing it mechanically, and another is to enter into the case, and take possession of the situation, and feel

that you master it, and that with the Lord's help you are going to run that thing, and have the thing done right. You want to see that the temperature is kept right, and kept account of, and that everything is done right, and to co-operate with nature. You want to know what nature is trying to do, and to see that you are trying to co-operate with Nature all the while.

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